THE IRON TRADE REVIEW

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MUCH ENERGY

BEING EXPENDED IN CLEANING UP OLD CONTRACTS,

Preparatory to Possible Price Changes —Little Activity in Pig Iron Except in the East— Blast Furnace Output Increased.

The iron market has been very quiet during the past week. This is due in part to the cessation of activities on account of Labor day, and to some extent to a rather uncertain feeling as to whether there will be any price changes about Oct. 1. Extraordinary efforts are being made to obtain specifications on old contracts, and the energies of the sales agencies of the leading interests are being exerted in that way rather than in obtaining new business. There is a feeling in some centers that an advance in certain finished products would be justified, but the situation is one calling for very wise and thorough consideration. Conditions have been steadily improving, and conservative men of the business would deplore any action which might tend to check the tendency toward greater prosperity.

Agricultural Demands

The demand for wire products continues strong, the principal interest now having in operation nearly 80 per cent of its capacity. In wire and also in steel bars, manufacturers catering to agricultural interests continue to be an important factor in maintaining a steady demand. Contracts for structural material are not numerous, but there is a fair run of small orders, and the tendency to cut prices for fabricating and erecting is not so much in evidence. The general contract for the Ritz-Carlton hotel in New York City, which will require about 5,000 tons of steel, has been awarded, and 1,500 tons of steel for the Meier-Frank building, at Portland, Ore., will be furnished by the receivers of Milliken Bros.

Railroad Buying

Railroad buying is not showing much increase. The recent inquiry for 7,000 cars for the Harriman lines has resulted in 5,100 cars being ordered, including a considerable number of special stock cars. There seems to be no immediate prospect of further orders by this interest. Numerous orders for bolts have been placed, but tangible evidence that contracts for rails will be made is still lacking, except in the case of the Hartford & New Haven, which will take 4,800 tons.

Pig Iron Production

Pig iron production for August amounted to 1,366,019 tons, an increase of 137,415 tons over July. Iron ore shipments from the Lake Superior region to Sept. 1 amounted to 11,984,936 tons, compared with 24,341,552 tons for the same period of 1907. It is becoming increasingly difficult for independent vessel interests to obtain cargoes, as about 25 per cent more boats than are necessary are in commission. The Pittsburg Steamship Co. announces that it will grant the usual advance of wages Oct. 1. Other companies will probably do likewise.

Pig Iron and Coke

There is fair activity in pig iron in the east, and prices are firmer, but in other sections of the country the market is dull, and there are some soft spots. The settlement of the coal miners' strike in Alabama will probably encourage some furnaces to go in blast and check the upward tendency of prices of southern pig iron. There will be a decreased demand for Virginia coke, which has been shipped in large quantities to Alabama during the strike. Buyers of old material are resisting high prices asked by dealers, and there is a deadlock in some cities.

STABLE PRICES

PREVENTED DISASTROUS RESULTS OF CUT-THROAT POLICY.

Report of President Scott of La Belle Iron Works— Stock Dividend of 33⅓ Per Cent Declared—Production Increasing.

In his annual report for the year ending June 30, 1908, President Isaac M. Scott, of LaBelle Iron Works, Steubenville, O., heartily commends the policy of co-operation followed by the leading manufacturers during the trying period following the panic. He says:

In common with the other business interests of the country, your company suffered severely in the way of decreased earnings during the last fiscal year through the depression brought about by the October panic.

In order that the effects of this interference may be in a manner measured, it would be well to divide the fiscal year into three equal periods of four months each and explain that from July to October inclusive your manufacturing plants were operated on a basis of 100 per cent, November to February inclusive approximately 40 per cent, and March to June inclusive 55 per cent, June being on a basis of 60 per cent, as against a little over 50 per cent in March.

Owing to the stability of prices in general, largely due to the intelligent manner in which the unusual situation growing out of the panic was handled, profits have been more favorable than would have been the case had those interested, when it was discovered that there was not sufficient business to go around, resorted to the old-time "cut-throat" policy and undertaken to have secured business from their competitors by the process of underbidding. As an evidence of the correctness of this reasoning, it might be cited that the falling off in the company's profits as compared with the last fiscal year, is in exactly the same proportion as the falling off in the value of the shipments. Almost invariably in times past a slackening in business brought lower prices and a decrease in profits not in the same ratio as the loss in business, but by an increasing ratio.

It is gratifying to be able to report that notwithstanding the decrease in

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THE WEEK IN IRON CENTERS

PITTSBURG

On Tip Toe of Expectancy—Pipe, Wire Products and Sheets Active—Pig Dull.

Office of THE IRON TRADE REVIEW, 510 Park Bldg., Sept. 8.

Aside from two or three lines that have experienced a decided spurt in business during the past two or three weeks, market conditions remain unchanged. There is practically no demand for pig iron or semi-finished steel, and in finished lines, aside from pipe, wire products and sheets, the new business,—by that meaning new contracts—is scarce. There is, however, a fair volume of specifications against old contracts, and manufacturers are directing their efforts toward increasing specifications and cleaning up their books rather than toward securing new business without shipping instructions.

This policy has been under way for several weeks, but it was quietly inaugurated, and the impression is gaining ground that when Judge Gary returns from his European trip, which will be within the next two or three weeks, the various committees he appointed late last fall will be called together and such action as conditions justify will be taken. Those who are in a position to know are not willing to talk, but they affect a knowing look when the matter is brought to their attention. When prices were reduced the whole line did not move together. They were cut where the business was needed worst, and advances, when they come, will undoubtedly come in those lines where the greatest tonnages are on the books and specified against. In this connection the return of Judge Gary will be an event to be watched with more than ordinary interest.

Developments of the week would lead to the belief that the recent announcements of car orders placed have been greatly exaggerated and that the actual number was about 20 per cent of the figures announced.

Pig Iron.—The pig iron market has been very quiet. Aside from one sale of low silicon foundry iron at $14.50 furnace, and several small lots at figures near that point, and an inquiry for 1,500 tons of No. 2 for the first half of next year, there has been little going on. Northern No. 2 is quoted at $14.50 to $14.75 valley, Bessemer $15.25 and basic $14.50 valley. A local interest has inquired for 200 tons of a special grade of iron, but the inquiry is not general. Reports are that the Bessemer and basic stock in the valleys is 64,000 tons. During the week, one of the large interests shipped 1,000 tons of Bessemer from stock on an old contract into which present market prices did not figure. For shipment over the remainder of the year we quote:

Bessemer, valley	$15.25 to 15.50
Bessemer, Pittsburg	16.15 to 16.40
No. 1 foundry, Pittsburg	15.90 to 16.15
No. 2 foundry, Pittsburg	15.40 to 15.65
Gray forge, Pittsburg	14.65 to 14.90
Basic, valley	14.50 to 14.75
Basic, Pittsburg	15.40 to 15.65

Ferro-Alloys.—Aside from a few scattered inquiries and one or two sales of small lots, this market continues quiet without change in prices.

Imported 50 per cent ferro-silicon is quoted $69 Pittsburg on forward deliveries; domestic 12 per cent, $29; 11 per cent, $28; 10 per cent, $27. On prompt deliveries these quotations are shaded $1 per ton. The lower grades of imported ferro-silicon are upon about the same basis. These quotations are applicable to Pittsburg territory.

Plates.—New business is light and nothing has developed during the past week to add any special feature to the situation. The Brooklyn, N. Y., riveted pipe job has been postponed at least a month by injunction and the other deals that have been pending for a month or more are still hanging fire with no definite information about them. The pipe manufacturers are specifying liberally against their plate contracts, and this business has been the mainstay for plate mills. That a gradual improvement is under way, however, is evident from the monthly increase. Local interests report August the best month so far this year, and each month since January better than its predecessor. We quote:

Tank plates, ¼-inch thick, 6¼ to 100 inches, 1.60c f. o. b. mill Pittsburg. Extras are as follows per 100 pounds: Boiler and flange steel plates, 0.10c; A. B. M. A. and ordinary firebox steel plates, 0.20c; still bottom steel, 0.30c; marine steel, 0.40c; locomotive firebox steel, 0.50c; all sketches, excepting straight taper plates varying not more than 4 inches in width at ends, narrowest end not being less than 30 inches, 0.10c; circles, 0.20c. Plates in widths over 100 inches up to 110 inches, 0.05c; over 110 inches up to 115 inches, 0.10c; over 115 inches up to 120 inches, 0.15c; over 120 inches up to 125 inches, 0.25c; over 125 inches up to 130 inches, 0.50c; over 130 inches, 1c. Gages under ½-inch to and including 3/16-inch plate on thin edges, 0.10c; under 3/16 to and including No. 8, 0.15c; under No. 8 and including No. 9, 0.25c. Five cents extra for less than carloads. Terms, net cash in 30 days.

Sheets.—There has been a steadily improving demand for iron and steel sheets, both black and galvanized, the tonnage running a little heavier on galvanized than on black sheets. The largest demands are coming from jobbers for stocks that have been badly depleted, and requests for immediate shipment usually accompany specifications. A local interest this week placed a fair tonnage with an independent interest for wrought iron sheets to entirely reroof its plant in the Pittsburg district. The percentage of mills in operation is about the same as last week. Reports of slight cuts in prices by small independent mills are still in circulation, but this action has not been felt in the general market. We quote:

Black steel sheets, cold rolled, No. 28 gage, $2.50 per 100 pounds, and galvanized sheets, No. 28 gage, $3.55 per 100 pounds, plus the regular extras.

Blue annealed: Nos. 11-12, 1.85c; Nos. 13-14, 1.90c; Nos. 15-16, 2c. Corrugated roofing, $1.75 per square for No. 28 painted, 2½-inch corrugation; and $3.10 per square on galvanized roofing, 2½-inch corrugation, No. 28.

Jobbers are allowed $1 a ton from these prices.

Tin Plate.—The big seasonable demand for tin plate is over and manufacturers are in position to get a line on the business of the year which, in view of depression in other lines, has shown up to advantage in tin plate, a larger percentage of contracts being taken out fully by specifications than last year. On the other hand, a large number of tin plate consumers did not place contracts for their last half estimated requirements, and took chances on the current market. The leading interest this week placed the 23 mills of the Laughlin works in full operation, having had an accident in one of its other departments. We quote:

Coke tin plate, 100-pound basis, 14 x 20, $3.70 f. o. b. mill Pittsburg district. Terms, 30 days, less 2 per cent for cash in 10 days.

Rails and Track Material.—There has been no change in the rail situation, railroads placing new orders or specifying against contracts only where necessity demands replacement and repairs. The rumor of contemplated rail buying has been circulated so often without foundation that repe-

tition does not bring even a simulated expression of belief, although if the buying did come, like the third cry of "wolf," a contract would not have have much chance to get by, as, contrary to the fable, it is the rail mills that are hungry. The light rail tonnage for the week has been about 1,500 tons. There has been a better demand for track bolts, bars and accessories and manufacturers of track tools have been buying steel to make up in anticipation of future business. On the present Bessemer rail specifications, we quote:

Fifty-pound and heavier, 500-ton lots and over, $28; carloads and less than 500 tons, $30; less than carload lots, $32; 8-pound, $36; 12-pound, $32; 16-pound, $30; 20-pound, $29; 25 to 45-pound, $28; angle splice bars for standard sections, $1.65; standard spikes, $1.70 to $1.80 Pittsburg; hand spikes, $1.80 to $1.90 Pittsburg.

Steel.—The large producers of semi-finished steel have not been active in their selling departments for some time past and are quoting only on inquiry, and evincing no disposition to encourage additional contracts, but rather to play a waiting game. At least two producers have adopted this policy and are devoting more attention to securing specifications against standing contracts and getting them out of the way than to placing new business on the books. With this policy adopted, they view without concern the reported shading of the official price on billets and slabs in other districts, and have expressed themselves as willing to let the business go to the price cutter if he wants it at prices mentioned in the rumor, $22 makers' mill.

Bessemer and open-hearth billets, base sizes, are quoted at $25 Pittsburg, and forging billets at $27 Pittsburg, subject to the division of the freight charge over $1 and not exceeding $3, and sheet and tin bars at $27.50 Pittsburg, valley and Wheeling territory, and $27 Pittsburg for delivery to other points.

Merchant Bars.—The past week was considerably better than its predecessor from the standpoint of specifications against existing contracts, due both to a better feeling among consumers as to prospects during the remainder of the year and to some extent to the urging of manufacturers. None of the special interests has been prominent in sending in orders for shipment, but a little bit all around brought the aggregate to a point above the average for the week. The railroads have not come out except in a very small way. We quote:

Common iron bars, 1.40c Pittsburg in carload lots and over; 1.45c in less than carloads; 1.32c to 1.35c base Pittsburg plus freight to point of shipment on western deliveries; Bessemer steel bars, 1.40c; plow and cultivator, 1.40c; channels, angles, zees, tees, under 3 inch, 1.50c, all f. o. b. Pittsburg. The following differentials are maintained on steel: Less than 2,000 pounds, 0.10c advance; less than 1,000 pounds of a size, 0.30c advance. Cold rolled and ground shafting 56 per cent in carloads, and 52 per cent less than carloads, delivered in base territory; open-hearth spring steel, 2.25c to 2.50c; sleigh shoe flats, 1.60c to 1.65c; smooth finished machinery steel, 1.90c to 2c; toe calk, 2.10c to 2.15c. Planished and machine straightened tire steel is 1.60c base. Iron finished tire under 1½ by ½ inch, 1.55c, plus one-half extras on tire card; iron, finished tire 1½ by ½ and over, 1.40c, plus one-half extra on the steel bar card.

On cold rolled strip steel, width 1½ inches and wider, and 0.100 inch thicker, we quote base prices per 100 pounds, $3.35 on hard, and $3.60 on soft.

Merchant Pipe.—Aside from a fair tonnage on new business, manufacturers are receiving a fairly large volume of specifications on contracts that have been under suspension many of them because of inability to finance, since early last fall. A bulk of this tonnage is for oil and gas lines and also for new developments in the various fields. Oil developments have been heavy in all the fields and the demand for casing has been in excess of the dry hole production. There has also been a good demand for the smaller sizes of merchant pipe. Taken altogether, the pipe business is in very satisfactory condition. Delivery promises are being extended and ability to give prompt shipment has, during the past week, influenced several small orders to mills that otherwise would not have gotten the business. Prices are being strictly maintained and we quote the following official discounts, with an additional one point and five to jobbers:

	—Steel—		—Iron—	
	Black.	Galv.	Black.	Galv.
¼ to 6 inches....	75	65	73	63

BOILER TUBES.

	Iron.	Steel.
2¼ to 5 inch.....	52	65

Wire Products.—The improvement in the wire trade noted for the past month has continued in increasing volume and the demand for quick shipment has become more urgent. Plain and barbed wire, fencing, wire nails and staples are being ordered direct by consumers and by jobbers for stocks on larger orders than at any time this year. Agricultural districts are the heaviest buyers. Prices are firmly maintained and, although no official action has as yet been taken, there is an intimation that prices ruling before the general reduction in all iron and steel products will soon be re-established. We quote:

Wire nails, jobbers' carload lots, $1.95; retailers' carload lots, $2; painted barb wire, jobbers' carload lots, $2.10; retailers' carload lots, $2.15, with 30c for galvanizing; plain wire to jobbers in carloads, 1.80c; and to retailers in carloads, 1.85c.

Coke.—While the production in the regions has increased between 3,000 and 4,000 tons per week since the middle of July, there has been but little change in the market and for spot shipment furnace coke is quoted $1.50 to $1.60 at the ovens and for shipment over the remainder of the year, $1.60 to $1.80, at the ovens. There is but little coke on track at railroad scales, and disposing of accumulations of this kind has brought out some of the low prices during the past two weeks. Standard 72-hour foundry coke is quoted $2.10 to $2.25, ovens, for prompt shipment as well as over the remainder of the year. The estimated production of furnace and foundry coke for the week ending Aug. 29 was 200,823 tons as compared with 196,144 for the week ending Aug. 22.

Old Material. — The bulk of available scrap is now held by dealers who are asking from $2 to $4 per ton above what consumers are inclined to pay under existing conditions, if they had an idea to stock up on speculation. The resultant deadlock has produced an extremely quiet market, the only transactions reported being between dealers. Prices are unchanged and we continue to quote as follows, gross tons, delivered in the Pittsburg district:

Heavy melting scrap, $14.50 to $15; re-rolling rails, $16 to $17; bundled sheet scrap, $12 to $12.50; iron axles, $20.50 to $21; old iron rails, $17 to $18; No. 1 wrought scrap, $15.50 to $16; old car wheels, $14.50 to $15; low phosphorus, $18 to $18.50; machine shop turnings, $9.25 to $9.75; cast borings, $8.50 to $9; No. 1 cast scrap, $14 to $14.50; malleable, $14.

The Altoona Iron Works, Altoona, Pa., has resumed operating in its bar mill, guide mill and puddling departments after an idleness of nearly seven months.

CHICAGO.

Agricultural Interests Still an Important Factor of the Market.

Office of THE IRON TRADE REVIEW,
1328 Monadnock Block, Sept. 8.

While, in its general aspects, the market is replete with promises of better things in the future, there is much in the occurrences of today that clouds the horizon. After so long a period of depression, it is entirely natural that the competition of mills and furnaces to share in the improved demand should bring out a range of prices not in accord with "official" schedules; and until business is more plentiful, it is also to be expected that these conditions will continue. Sheets, plates and structurals are the three products in which the shading is most widely felt, the cutting ranging from $1 to $2 a ton. An exception is made in favor of fabricated structural steel, the manufacturers of which have steadily grown firmer in their prices as the volume of business has increased. Neither specifications nor new tonnage were in as good volume last week as during any equal period in August, and the inference is taken that the active elements in the trade being filled up, a lull for a month or so will be experienced before another buying movement sets in. There is one bright spot in the market that illumines the whole list and forms the basis for all the hopeful prognostications that are made. It is the demand for material which enters directly into the manufacture of agricultural machinery. The specifications for steel bars are such that for the first time in eight months, the local manufacturers of this product are compelled to make up their rolling schedules two or three weeks in advance. Wire nails, fencing and barb wire are also moving in old-time volume, the American Steel & Wire Co. reporting between 75 per cent and 80 per cent of its capacity in operation. Mining and lumber companies are buying freely of light rails, indicating improved activity in these directions; and that steam roads are again spending money on their roadbeds is evidenced in the good sized orders and specifications for track supplies. The volume of miscellaneous orders for fabricated structural steel, is also improving, one maker reporting 33 per cent of its capacity taken up in this class of business. Bar iron is slow and scrap is inclined to softness.

Pig Iron.—Transactions this week have not been of a very active character. Buying is sporadic and is impelled almost wholly by individual needs. There is no disposition to discount the future, for experience in buying counts for little in a market that is as confusing as the local one. When southern iron is stronger and offered at a higher price than the local product, it is difficult to induce much of a buying movement among western foundrymen, because such a condition is against all precedent. This condition now prevails locally, and the furnaces in this district are unable to remedy the situation. Their hands are tied by the activity of valley and southern Ohio furnaces in soliciting the western trade on a basis lower than both southern and local quotations. One sale of 500 tons of valley No. 2 for immediate shipment was made to the Crane Co. this week at $16.50 Chicago. The Beckwith Estate, Dowagiac, Mich., also purchased 2,000 tons from the Toledo furnace for 1909 delivery at a price relatively as good. This concern originally came into the market for a total of 5,000 tons, 2,000 tons of which was southern iron, and 1,000 tons silvery. It did not purchase either of the latter because of its inability to get as good a price on these products as it secured on the northern iron. Many other bona fide inquiries for southern and local irons have been withdrawn for the same reason, inasmuch as neither producers show a willingness to shade their quotations of $13 Birmingham and $17 Chicago, for No. 2 foundry. The Zenith, Spring Valley and Thomas furnaces are out of blast, while the Iroquois furnace is piling iron, but their operators prefer to continue in this wise, selling here and there when they can to those who prefer their products, rather than meet the valley competition. These conditions are likely to continue for an indefinite period if the reports of the very large stocks the valley furnaces are carrying are even approximately true. We quote local prices unchanged as follows:

Lake Superior Charcoal	$19.50 to 20.00
Northern Foundry No. 1	17.50 to 18.00
Northern Foundry No. 2	17.00 to 17.50
Northern Foundry No. 3	16.50 to 17.00
Southern Foundry No. 1	17.35 to 17.85
Southern Foundry No. 2	16.85 to 17.35
Southern Foundry No. 3	16.35 to 16.85
Southern Foundry No. 4	15.85 to 16.35
Southern No. 1 Soft	17.35 to 17.85
Southern No. 2 Soft	16.85 to 17.35
Southern Gray Forge	15.60 to 16.10
Southern Mottled	15.35 to 15.60
Southern Silveries, 4 per cent Silicon	18.85 to 19.35
Southern Silveries, 5 per cent Silicon	19.35 to 19.85
Southern Silveries, 6 per cent Silicon	19.85 to 20.35
Jackson Co. Silveries, 6 per cent	19.90 to 20.40
Jackson Co. Silveries, 8 per cent	20.90 to 21.40
Jackson Co. Silveries, 10 per cent	21.90 to 22.40
Malleable Bessemer	17.25 to 17.75
Standard Bessemer	18.25 to 18.75
Alabama Basic	16.85 to 17.35

Billets and Rods.—A good sized tonnage of wire rods is on the books of the leading local interest, not only for delivery this year but also for next year. It is practically all made up of annual contracts, and specifications are what are most urgently needed. The volume of these is reasonably satisfactory, indicating that the independent manufacturers in the wire trade are feeling the impetus growing out of the improved demand for nails and fencing and are receiving their share of the fall trade. There is no change in the billet situation, both orders and specifications being for small lots and mixed sizes. Prices continue the same, being $26.50 for 4 x 4 inch rolling billets; and $28.50 base for forging billets, Chicago deliveries. Bessemer wire rods are $33; open-hearth, $35, and chain rods $33, all f. o. b. Pittsburg.

Merchant Bars.—A strong evidence of the return of better times is the fact that local steel bar mills are compelled to make up rolling schedules for two or three weeks in advance. It is the first time in eight months they have found it necessary to do this, which in itself bespeaks the splendid volume of specifications coming from the implement trade. New tonnage is not so heavy a factor as formerly, and competition for the business going is keen, resulting in prices being shaded about $1 a ton. Bar iron pursues the even tenor of its way. Prices are uniformly maintained, though recessions are occasionally made to draw out attractive business. Specifications for iron have not been so active this week as formerly, but, nevertheless, they continue in good volume. The decline is most noticeable among those consumers habitually inclined to ordering and specifying heavily. Now that their stocks are augmented, these interests have temporarily withdrawn from the market, leaving the miscellaneous trade and car repair shops to do the bulk of the trading. Hard steel shapes are moving with fairly good freedom, and there is also a brisk demand for reinforcing bars, the latter mostly in small quantities. We quote Chicago delivery, as follows:

Bar iron, 1.50c to 1.53c; soft steel bars and bands, 1.58c, half extras; soft steel angles, less than 3 x 3, 1.68c; hoops, 1.98c base, full extras; planished or smooth finished tire steel, 1.78c; iron finish, up to 1½ x ½-inch 1.73c base tire card; iron finish, 1½ x ½-inch and larger, 1.58c base steel card; channel for solid rubber tire, ¾ to 1-inch, 2.08c, and 1⅛-inch and larger, 1.98c; smooth finished machinery steel, 1.83c; flat sleigh shoe, 1.63c; concave and convex sleigh shoe, 1.83c; cutter shoe, 2.05c; toe calk steel, 2.13c; railway spring, 1.93c base steel card; vehicle spring steel, 1.78c base, vehicle card; crucible tool steel, 7c to 9c, with higher prices asked on special grades. Quotations on shafting are 56 per cent off the list for carload lots, and 52 per cent off for less than

carload lots, carload freight allowed to points in base territory. On iron and steel bars from local stocks, we quote as follows: Bar iron, 1.90c to 2c, full extras; soft steel bars, 1.80c per 100 pounds base, plus half extras; soft steel hoops, 2.30c, full extras.

Plates.—Nothing has developed in the past week to change the situation as it was reported a week ago. Except for the movement from warehouse stocks, local demand is light. Furthermore, manufacturers are contending with an active price cutting element, which is offering to shade the established quotations from $1 to $2 a ton. This competition is turning a large portion of the orders in the market to eastern mills, with the result that the South Chicago plate mill continues idle. The bright spot in plates in the west is the jobbing trade. Local distributors report that each month shows an improvement over the preceding one, and that the number of orders, even though the average is for three or four plates, is well up to the number of orders received at this time a year ago. Store prices are well maintained. We quote without change as follows:

Plates, ¼-inch and heavier, 6¼ to 100 inches wide, either universal or sheared, 1.78c Chicago. For extras see Pittsburg report. Jobbers' prices for shipment from local stocks are as follows: Tank steel, ¼-inch and heavier, up to 72 inches wide, 2c to 2.10c; from 72 to 96 inches wide, 2.10c to 2.20c; 3/16-inch up to and including 60 inches wide, 2.10c to 2.15c; 72 inches wide, 2.35c to 2.45c; No. 8, up to 60 inches wide, 2.10c to 2.15c. Flange and head quality, 25c extra.

Sheets.—That stocks are low in the hands of consumers and fabricators generally is evidenced by the insistence with which quick shipment is demanded on nearly all orders. Business is not yet what might be classed good, but it is nevertheless steady, and constantly improving. Very brisk orders are received from metal workers engaged in outdoor operations, such as the manufacture of eaves troughs, etc. There is some irregularity in prices, especially on galvanized and light gages of black sheets, on which cutting is reported to the extent of $1 to $2 a ton. Mills are able to give immediate delivery on all orders, having accumulated sufficient stocks on their yards to permit this, and at the same time are actively cutting into the local store trade. We quote store prices, Chicago delivery, below. For mill prices see Pittsburg report.

No. 10, 2.15c to 2.25c; No. 12, 2.20c to 2.30c; No. 14, 2.25c to 2.35c; No. 16, 2.35c to 2.45c; Nos. 18-20, 2.60c to 2.65c; Nos. 22-24, 2.65c to 2.70c; No. 26, 2.70c to 2.75c; No. 27, 2.75c to 2.80c; No. 28, 2.85c to 2.95c; No. 30, 3.25c. Galvanized sheets, No. 10 to 16, 3.05c to 3.10c; Nos. 18 to 20, 3.15c to 3.25c; Nos. 22 to 24, 3.30c to 3.35c; No. 26, 3.50c to 3.55c; No. 27, 3.70c to 3.75c; No. 28, 3.90c to 4.00c; No. 30, 4.40c to 4.50c.

Structural Steel.—While the actual tonnage placed with mills and fabricators this week is light, there are many signs portending a sharp improvement in the general situation. The most important of these is the elimination to a large extent of the disastrous practice of cutting prices to the bone. This is best evidenced in the quotations on two large projects, which were recently made public. One was an 8-track bridge over the Drainage Canal, which called for 8,000 tons of steel. Alternative bids were asked, one to include the purchase and disposition of the present bridge over the canal, and the other figured on the basis of the canal interests keeping the bridge and disposing of it themselves. On the former basis, the Chicago Bridge & Iron Works was the lowest bidder, and on the latter basis the Modern Steel Structural Co., Waukesha, Wis., was the lowest bidder. The interesting fact is that there was only a difference of 10 per cent between the highest and lowest bidders on both propositions. The other case in point was the bids on the material for the First National Bank building in Pittsburg. This was let to the Pittsburg Steel Construction Co. at $54 a ton. It will be remembered that in the sharp competition for the Oliver building, in the same city, the lowest bid was $47 a ton. Another interesting fact as tending to show the improvement in building operations is the statement of the American Bridge Co. that its miscellaneous orders during August aggregated 33 per cent of its total output. This is exclusive of the tonnage from the Steel Corporation and of specifications on blanket contracts. When the miscellaneous orders range between 55 per cent and 60 per cent of the total output, the company's capacity on this class of business has been reached. The tendency among financial men is still to postpone the letting of contracts for large work until next year, the bids on about 17,000 tons of this class of work having recently been withdrawn to this period. We quote as follows:

Beams and channels, 3 to 15 inches, inclusive, 1.78c to 1.81c delivered Chicago. For extras see Pittsburg report. Quotations from store are as follows for carload lots and over:

All angles, 3 inches and larger, including 6 inches, $1.95 per 100 pounds; angles over 6 inches, $2.05 per 100 pounds, base; beams, 3 to 15 inches inclusive, $1.95c per 100 pounds, base; channels, 3 inches and larger, $1.95c per 100 pounds, base. Less than carload lots are $1 a ton higher than foregoing prices.

Rails and Track Supplies.—The only contract for standard sections called for 2,500 tons, and this was let by a private interest. Buying of track supplies was not so good last week as formerly, but the local mill is not suffering from lack of specifications. Light rails are moving in satisfactory volume. Specifications for heavy sections are slow, the local interest having only about 35,000 tons on its books, as against orders for substantially over 200,000 tons. We quote as follows:

Standard rails, $28 f. o. b. mill, full freight to destination; light rails, 25-pound to 45-pound, $26; 20-pound, $27; 16-pound, $28; 12-pound, $29. Track supplies, f. o. b. Joliet, angle bars, 1.50c to 1.60c; spikes, 1.80c to 1.90c; track bolts, with square nuts, 2.10c to 2.20c; with hexagon nuts, 2.25c to 2.35c. Small railroad and square boat spikes, 1.90c base, f. o. b. Chicago.

Cast Iron Pipe.—The volume of business placed with the leading interest through its western office in the past week totals between 4,000 and 5,000 tons. The largest order was from Brainerd, Minn., for 800 tons of 16-inch pipe. The balance was made up of small lots, with a good scattering business from gas companies and private enterprises. We quote 4-inch pipe, $27; 6-inch to 12-inch pipe, $26; larger sizes, $25; gas pipe, $1 a ton higher.

Merchant Pipe and Boiler Tubes.—Very little change is apparent in the tone and volume of local trade. Specifications are good from the jobbing and agricultural interests, and there is an improvement in railroad orders. We quote:

	—Steel—	
	Black.	Galv.
¼ to 6 inches, inclusive.....	73.2	63.2
7 to 12 inches, inclusive.....	70.2	55.2

BOILER TUBES.

	Steel.	Iron.	Seamless.
2¼ to 5 in., inclusive....	63.2	50.2	50.2

MERCHANT PIPE.

	—Steel—	
	Black.	Galv.
⅛ to ¼ inch.....	65	49
⅜ inch	67	53
½ inch	69	57
¼ to 6 inches.....	73	63
7 to 12 inches.....	69	54

Wire Products.—The American Steel & Wire Co. is now operating between 75 per cent and 80 per cent of its capacity, and if the specifications keep up in the volume shown during August, it will not be long before the full capacity will be in operation. No indication of any let up is seen and mill stocks are rapidly being reduced. It is evident from the specifications that jobbers and dealers have very little tonnage in storage. We quote as follows:

Wire nails, $2.13; painted barb wire, $2.28; galvanized barb wire, $2.58; smooth annealed wire, $1.98; smooth galvanized wire, $2.28; polished staples, $2.23; galvanized staples, $2.53. Carload lots to retailers, 5 cents higher; less than carload lots, 15 cents higher.

Coke.—Furnace coke continues to lead in demand from western consumers. The foundry trade is pretty generally under contract for the coming winter, and it is a matter of specifications from these interests. These are slow on account of the dullness which still prevails among western foundrymen. We quote on furnace coke for 1909 shipment, $1.90 to $2 at the ovens. On 1908 shipment, the price remains the same at $1.60 to $1.85 ovens. Foundry coke continues firm at $2 to $2.25 for any delivery.

Old Material.—While quotations are not materially lower than a week ago, there is observed a softer tendency in the market than was apparent last month. This is accounted for by the refusal of consumers to take hold at the current prices. A large amount of material has been thrown on the market by railroads in the last two weeks, and this has had to be moved. Dealers have reached practically the end of their limit in storage capacity, and what new tonnage is offered is disposed of at once to the consuming trade. As most of the latter are comfortably filled for six weeks to three months, they were in a position to view with equanimity the efforts of dealers to make a sale, and the natural result was that prices receded just enough to close the transaction. There were enough transactions of this character to take the stiffness out of the market and to prick the incipient bulge before it had inflated to very large proportions. This set-back has not changed the attitude of dealers, and the tightness with which they hold on to their large stocks in storage indicates a firm belief in the early accomplishment of their ambitions. The railroad lists out this week aggregate 4,000 tons, including the B. & O., Sante Fe, Wisconsin Central and C., St. P., M. & O. offerings. We have revised our prices, and quote gross tons in the first paragraph as follows:

Old car wheels	$16.00 to 16.50
Old iron rails	16.75 to 17.25
Re-rolling rails (4 ft. and over)	16.00 to 16.50
Old steel rails (4 ft. and under)	14.50 to 15.00
Light section relayers, 45 lbs. and under, subject to inspection	21.00 to 23.00
Relaying rails, subject to inspection	19.00 to 19.50
Frogs, switches and guards	14.25 to 14.75
Heavy melting steel	13.50 to 14.00

We quote, net tons, as follows:

No. 1 R. R. wrought	$13.00 to 13.50
No. 2 R. R. wrought	12.25 to 12.75
Knuckles, couplers and springs	13.00 to 13.50
Shafting	16.00 to 16.50
Iron car axles	18.75 to 19.25
Steel car axles	17.25 to 17.75
Dealers' forge No. 1	10.50 to 11.00
Pipes and flues	10.00 to 10.50
No. 1 cast, 150 lbs. and less	13.00 to 13.50
No. 1 mill	8.00 to 8.50
Mixed busheling (Nos. 1 and 2)	8.00 to 8.50
Country sheet	4.50 to 5.00
No. 1 boiler cut	9.50 to 10.00
Boiler punchings	11.50 to 12.00
Cast borings	5.25 to 5.75
Mixed borings, etc	5.25 to 5.75
Machine shop turnings	6.75 to 7.25
Railroad malleable	12.50 to 13.00
Agricultural malleable	11.75 to 12.25
Stove plate and light cast scrap	11.75 to 12.25
Old iron splice bars	16.00 to 16.50

CLEVELAND.

Iron Ore Shipments—Bolt Prices Reaffirmed—Pig Iron Dull.

Office of THE IRON TRADE REVIEW,
Browning Building, Sept. 8.

Iron Ore.—Shipments from the Lake Superior region for August amounted to 4,749,655 tons, an increase of 385,372 tons over July, but a decrease of 2,057,156 tons compared with August, 1907. The shipments to Sept. 1 amounted to 12,356,616 tons, a decrease of 50.76 per cent compared with the shipments to Sept. 1, 1907. Shipments for three years by ports follows:

Port—	Aug., 1906.	Aug., 1907.	Aug., 1908.
Escanaba	871,106	918,286	597,220
Marquette	403,328	574,659	279,610
Ashland	571,698	607,653	444,246
Superior	906,960	1,334,790	611,321
Duluth	1,601,941	2,051,280	1,764,053
Two Harbors	1,310,779	1,320,143	1,053,205
	5,665,815	6,806,811	4,749,655
	To Sept. 1, 1906.	To Sept. 1, 1907.	To Sept. 1, 1908.
Escanaba	3,436,611	3,731,165	1,351,513
Marquette	1,708,937	1,924,464	725,399
Ashland	2,251,057	2,314,760	1,037,185
Superior	3,578,496	4,416,454	1,723,208
Duluth	6,584,272	7,202,645	4,583,987
Two Harbors	5,161,723	4,752,064	2,663,644
	22,721,095	24,341,552	11,984,936

It is becoming increasingly difficult for independent vessels to obtain cargoes, and it is evident that there is about 25 per cent more vessel tonnage in commission than is required.

On base ores with the guarantee of 55 per cent on old range and Mesabi Bessemer, and 51½ per cent on old range and Mesabi non-Bessemer, we quote as follows: Old range Bessemer, $4.50; Mesabi Bessemer, $4.25; old range non-Bessemer, $3.70; Mesabi non-Bessemer, $3.50.

Pig Iron.—There has been a fair amount of buying in small lots for immediate requirements, but no large tonnages have been disposed of, and no important inquiries are pending. Prices are unchanged, and we quote, f. o. b. Cleveland, as follows:

Bessemer	$16.55 to 16.65
No. 1 foundry	15.40 to 15.80
No. 2 foundry	15.25 to 15.65
No. 3 foundry	14.90 to 15.25
No. 2 southern	15.85 to 16.10
Gray forge	14.00 to 14.50
Lake Superior charcoal	19.50 to 20.00

Coke.—Selling interests are showing a disposition to advance their quotations for forward delivery, but are disposing of prompt shipment coke at $1.60 to $1.80 for furnace and $2 to $2.25 for foundry grades.

Finished Material.—Jobbers report a very fair volume of business from warehouses, but mill orders are scarce. Bar iron manufacturers in the east are still competing for business in the central western territory. Cleveland mills have not sufficient orders to justify continuing in operation. At the meeting of bolt, nut and rivet manufacturers last week, present prices on bolts were reaffirmed, but no agreement was reached on nuts and rivets. There has been considerable buying of bolts by railroads during the past week, but the nut and rivet market is very dull. Prices on sheets seem to be fairly well maintained, although a low price is occasionally heard of.

Old Material.—While no change has been noted in prices this week, there has been a slightly perceptible softening of the market. Local mills are buying sparingly while operating, and local dealers are inclined to the view that while slight price changes may occur, yet the market in general may run along until early winter at about its present status. We continue to quote, f. o. b. Cleveland:

Old iron rails	$16.50 to 17.00
Old steel rails (re-rolling)	15.00 to 15.50
Old steel rails (under 6 ft.)	15.00 to 15.50
Old car wheels	15.00 to 15.50
Old steel boiler plate	12.50 to 13.00
Steel axles	18.00 to 18.50
Malleable iron (railroad)	13.00 to 13.50
Malleable iron (agricultural)	11.50 to 12.00
Heavy steel	13.75 to 14.25
Country mixed steel	12.00 to 12.50
Low phosphorus	16.00 to 16.50

We quote, net tons, as follows:

No. 1 R. R. wrought	$13.00 to 13.50
No. 1 busheling	12.00 to 12.50
No. 1 machine cast	12.00 to 13.00
Iron axles	17.00 to 18.00
Axle turnings	9.50 to 10.00
Machine shop turnings	7.50 to 8.00
Grate bars	11.00 to 11.50
Pipes and flues	11.00 to 11.50
Tank iron	11.00 to 11.50
Hoop and band iron	8.00 to 8.50
Sheet iron	6.00 to 6.50
Wrought drillings	7.50 to 8.00
Stove plate	11.00 to 11.50
Cast borings	7.00 to 7.50

CINCINNATI.

Cast Iron Pipe and Michigan Interests Appear in Pig Iron Market.

Office of THE IRON TRADE REVIEW,
First National Bank Bldg., Sept. 8.

Pig Iron.—Orders placed for pig iron the past week have been moderate in this territory, and the market is rather quiet. It is reported that the leading interest in cast iron pipe purchased about 3,500 tons of southern iron, said to be for delivery at one of its southern plants. A Michigan melter is in the market for about 4,000 tons of southern foundry iron for delivery in the last quarter of this year and first quarter of next. Another melter wants 700 tons of 10 per cent silicon, for September, October and November delivery. Three malleable inquiries are under consideration, one of the prospective buyers asking for a concession in consideration of taking in some high priced iron on old contracts. An Indiana buyer wants 500 to 1,000 tons of malleable for first quarter of next year; and a malleable melter in St. Louis territory is inquiring for 1,300 tons for last quarter of this year and first quarter of next delivery. A southern consumer is in the market for 2,000 tons of gray forge for delivery over the remainder of the year. The rank and file of melters seem to show but little interest in the last quarter of the year, and it is generally believed that the wants for this period are fairly well covered. There is some shopping for next year delivery in a more or less serious way, but buyers indicate no willingness to pay present prices for southern iron while the southern producers are asking from $13.00 to $13.50 for first quarter of next year, Birmingham basis. The northern furnaces seem inclined to take business at $15.00 at furnace for first quarter of next year. The market for southern iron for prompt shipment and last quarter is dull at $12.50 Birmingham, and it is intimated that this price has been shaded, although no actual sales have been reported on a lower basis. The settlement of the Birmingham coal strike and the blowing in of additional furnaces in the south are regarded as elements of weakness in the southern situation. It is pointed out that stocks at northern furnaces are liberal, the Virginia furnaces have considerable iron and, with northern iron relatively lower than southern in this territory, but few orders can be expected to go to the south in the next four months, as consumers are too well covered to admit of much buying. On the other hand, the southern producers appear to have order books in good condition and will not need a large volume of orders to absorb the present production. The attitude of the southern stacks with unsold tonnage in regard to meeting northern iron prices is being watched with much interest. Some southern producers continue to ask $13.00 Birmingham, which is equivalent to withdrawal from the market. We quote for prompt shipment and third quarter delivery, delivered Cincinnati, based on freight rates of $3.25 from Birmingham and $1.20 from Ironton as follows:

Southern foundry No. 1	$16.25 to 16.75
Southern foundry No. 2	15.75 to 16.25
Southern foundry No. 3	15.25 to 15.75
Southern foundry No. 4	14.75 to 15.25
Southern No. 1 soft	16.25 to 16.75
Southern No. 2 soft	15.75 to 16.25
Southern gray forge	14.25 to 14.50
Northern No. 1 foundry	16.70 to 17.20
Northern No. 2 foundry	16.20 to 16.70
Northern No. 3 foundry	15.70 to 16.20
Northern 8 per cent silicon	19.70

Finished Material.—Specifications on contracts have been fairly liberal for the past week, and prices are without change. The jobbing demand has been fair, but not large, as mill deliveries are prompt. Small orders are filled here at the following quotations:

Iron and steel bars, 1.85c to 2c, full extras. Angles, 3 x 3 and over, 2.10c to 2.25c; beams and channels, 15 inches and under, 2.10c to 2.25c; small angles and architectural channels, 2c base; plates, ¼-inch and heavier, 2c; 3/16 inch, 2.10c; No. 8, 2.15c; sheets, blue annealed, No. 10, 2.15c to 2.25c; No. 12, 2.20c to 2.30c; No. 14, 2.25c to 2.35c; No. 16, 2.35c to 2.45c; box annealed sheets, Nos. 18 and 20, 2.55c to 2.65c; Nos. 22 and 24, 2.65c to 2.75c; Nos. 25 and 26, 2.70c to 2.80c; No. 27, 2.75c to 2.85c; and No. 28, 2.85c to 2.95c; boiler tubes, 2¾ to 5 inches, 62 per cent off base; turn-buckles, 45 per cent off, rivets, 3c base; cold rolled shafting, 47 to 50 per cent off list; steel tire, 2.05c to 2.10c base.

Coke.—The settlement of the strike in the Birmingham district will, it is believed, have a tendency to weaken the market in the Pocahontas and Wise county districts, as orders to stop shipment have already commenced. The general market rules quiet and an easy tone prevails under free offerings and moderate inquiry. Prices in the leading coke producing districts are as follows:

	PER TON.
Wise county furnace coke	$1.90 to 2.00
Wise county foundry coke	2.10 to 2.25
Pocahontas furnace coke	1.60 to 1.75
Pocahontas foundry coke	2.00 to 2.25
Standard Connellsville furnace coke	1.75 to 1.80
Standard Connellsville foundry coke	2.00 to 2.25
Connellsville district furnace coke	1.60 to 1.65
Connellsville district foundry coke	2.00 to 2.25

Old Material.—The market is mainly confined to trading between dealers, and prices are well sustained. Melters are taking only moderate quantities and there is no material change in the situation. We quote dealers' prices here as follows:

Old No. 1 R. R. wrought, net tons	$11.50 to 12.50
Cast machine and fdy., net tons	12.00 to 12.50
Old iron rails, gross tons	14.00 to 14.50
Old steel rails (re-rolling) gross tons	13.25 to 13.75
Old short lengths, gross tons	12.50 to 13.00
Old iron axles, net tons	16.00 to 16.50
Heavy melting scrap, gross tons	12.50 to 13.00
Stove plate, net tons	10.00 to 10.50
Wrought turnings	5.50 to 6.50
Cast borings, net tons	4.50 to 5.00
Car wheels, gross tons	13.50 to 14.50

PHILADELPHIA.

Pig Iron Prices Firm—Cars for the Harriman Lines.

Office of THE IRON TRADE REVIEW,
408 Central Trust Bldg., Sept. 8.

Pig Iron.—Prices generally hold firm at present levels. One large interest announces $16.75 as its lowest price on basic delivered, and two furnace companies, the Thomas Iron Co., nine stacks, and the Empire Steel & Iron Co., eight stacks, each with one stack in blast, have announced an increase of 50 cents a ton in all grades, for delivery the remainder of the year. The highest prices quoted in this report are given as their lowest by one large interest, while on the other hand a shading of 50 cents a ton in all grades, except southern, is said to be possible in other quarters. Buyers seem eager for quotations for 1909 and sales are being made for such delivery, but as a rule sellers maintain a conservative attitude in that regard. One interest has had inquiry totaling 25,000 tons during the past week, 15,000 of which comes from one concern. There is another inquiry in the market for 2,000 tons. No. 2 furnace of the Warwick Iron & Steel Co., capacity 3,500 to 4,000 tons weekly, will shortly be put in blast. No. 1 is in operation. In an address before the Philadelphia Foundrymen's Association recently, a leading pig iron salesman stated that the business of his firm during July and August had been the best in the 20 years of its existence. We quote as follows delivered in buyer's yard eastern Pennsylvania and surrounding territory:

No. 1X foundry	$17.00 to 17.50
No. 2X foundry	16.50 to 17.00
No. 2 plain	16.00 to 16.50
Standard gray forge	15.25 to 15.50
Basic	15.50 to 16.00
Low phosphorus	21.00 to 21.50
No. 2 Birmingham	17.00 to 17.50
No. 2 Virginia	16.85 to 17.35

Finished Materials.—The Cambria Steel Co., it is understood, has practically been awarded a contract for 500 steel gondola cars for the Harriman lines. Other matters in the finished line are quiet. Speaking of the situation, a steel man said there has been slight improvement, that business was better than in April, but that the improvement was fitful and slow and that normal conditions would not obtain before spring. We quote as follows: Structural, 1.75c to 1.90c; plates, 1.75c to 1.80c; refined iron bars, 1.35c to 1.45c; steel bars, 1.55c.

Old Material.—The market is quiet, the railroads having out their lists for bids and little actitvity is expected before the tenth or fifteenth of the month. We quote as follows:

Old steel rails (re-rolling)	$16.50 to 17.00
No. 1 steel scrap	15.25 to 15.75
Old steel axles	21.00 to 22.00
Old iron axles	22.50 to 23.50
Old iron rails	20.00 to 20.50
Old car wheels	14.50 to 15.00
Choice scrap R. R. No. 1 wrought	18.25 to 18.75
No. 1 yard scrap	16.00 to 17.00
Machinery scrap	15.00 to 15.50
Low phosphorus scrap	19.00 to 19.50
Wrought iron pipe	14.00 to 14.50
No. 1 forge fire scrap	12.00 to 12.50
No. 2 forge fire scrap, ordinary	9.00 to 10.00
Wrought turnings	11.50 to 12.00
Axle turnings, heavy	12.50 to 13.00
Cast borings	10.75 to 11.25
Stove plates	13.00 to 13.50

BUFFALO.

Little Change in Pig Iron—Some Activity in Finished Products.

Office of THE IRON TRADE REVIEW, 932 Ellicott Square, Sept. 8.

Pig Iron.—Little change has taken place in the general market conditions in this district. Quotations remain unchanged. The business of the past week fell a trifle below that of the week preceding, but the difference was not sufficient to influence prices. Inquiries come in for nearly all grades of iron, but mostly for small tonnage. The sales are largely for lots ranging between carload and 2,500 tons, which is usual for this district. One inquiry for 4,000 tons of foundry iron, delivery before July 1, 1909, was reported. We quote, f. o. b. Buffalo, as follows:

No. IX foundry	$16.00 to 16.50
No. 2X foundry	15.50 to 16.00
No. 2 plain	15.00 to 15.50
No. 3 foundry	15.00 to 15.50
Malleable Bessemer	16.00 to 17.30
Gray forge	14.75 to 15.25
Charcoal	20.25 to 20.75

Finished Products.—While the general market for finished material was everywhere reported quiet, yet one of the local steel plants has ordered on day and night crews in the sheet bar department, with the prospect of running day and night for several weeks. This is the first time since the depression began that this mill has run on anything but day turn, and it is regarded locally as of special significance. Aside from this, a restricted number of inquiries were received the past week, most of them referring to small contracts.

NEW YORK.

Fair Business in Pig Iron—Basic Price Advanced—Few Structural Contracts.

Office of THE IRON TRADE REVIEW, Room 1005, No. 90 West St., Sept. 8.

Pig Iron.—Despite the interruption occasioned by the Labor Day vacation, the first week in September developed a very fair amount of pig iron business. August was an exceedingly good month with practically all selling interests, one of the largest reporting its sales as about half as large as those made during the entire seven months previous, and September shows no indications of a let-up. Foundries are reporting a moderate improvement in melt and are contracting for their requirements for the remainder of the year. During the past 10 days, sales which have come to light in this territory have aggregated over 30,000 tons, chiefly of foundry and gray forge, but including also considerable malleable and basic. The weak spots which have been important factors in the eastern market for some months are now almost entirely eliminated, several interests selling into this territory have announced advances and $16 for basic, eastern delivery, now seems to be minimum. Quotations at New York tidewater are as follows for delivery over the remainder of the year:

Northern foundry No. 1	$17.00 to 17.50
No. 2X foundry	16.50 to 17.00
No. 2 plain	15.50 to 16.00
No. 2 southern foundry	16.75 to 17.25
Malleable	17.00 to 17.50
Basic	15.75 to 16.00
Gray forge	15.25 to 15.75

Ferro-Alloys.—The feature of the week is the circulation of a very large ferro-manganese inquiry, which will probably develop into business at an early date. We quote $44 to $45, seaboard. There is little activity in ferro-silicon, on which the present price level is $68 to $70, Pittsburg. Other alloys are quiet.

Finished Materials. — Few lettings are reported in structural lines. Bids go in today on the Emigrant Savings Bank building, for which close to 5,000 tons of steel will be required, and prospects are good for an early decision. The general contract has been awarded for the construction of the Ritz-Carlton hotel, a 14-story building to be erected at Fifth avenue and Forty-sixth street, which will require about 5,000 tons of steel. A theater and restaurant pavilion for Feltman's at Coney Island will involve about 1,200 tons, the contract for which will be let shortly. It is definitely announced that the 1,500 tons of steel needed for the Meier-Frank building at Portland, Ore., will be furnished by Milliken Bros. In railroad bridge work, the American Bridge Co. has taken 200 tons from the Franklin & Clearfield and a like tonnage from the Michigan Central, the McClintic-Marshall Construction Co., 120 tons from the New York Central and the Minneapolis Steel & Machinery Co., a small tonnage from the St. Paul. Nothing has developed in regard to the Clinchfield contract and the Buffalo work of the New York Central is still pending. An instance of the heavy requirements of railroads for repair purposes is the recent purchase by a western line of 15,000 tubes, all for patching up old engines. There is an active trade in light mill materials.

Bids close Wednesday for the Springfield pipe line, for which both iron and steel pipe makers are vigorously competing. The contract for 600 tons of 12 and 16-inch pipe for York Harbor, Maine, has been secured by the United States Cast Iron Pipe & Foundry Co. Syracuse has taken bids on 100 tons of small pipe, Troy will receive bids on a small lot Sept. 11, and Marcellus, N. Y., will shortly buy 400 tons.

In other finished lines no change is reported and we quote:

Angles, 3 to 6 inches x ¼-inch and heavier, 1.76c; beams, 3 to 15 inches, 1.76c; tees, 3 x ¼-inch and heavier, 1.81c; plates, carloads, tanks, 1.76c; marine boilers, 2.16c; bar iron, 1.46c; soft steel bars, 1.56c; sheets, No. 28, black, 2.66c.

Old Materials.—The market is in a state of practical deadlock between holders of scrap and possible purchasers, the latter objecting to the prices at which the material is offered. As a result, business is confined to small lots. We quote, gross tons, New York delivery, as follows:

Old iron rails	$15.00 to 15.50
Old steel rails, re-rolling	14.00 to 14.50
Relaying rails	20.50 to 21.50
Old car wheels	13.50 to 14.00
Old iron car axles	17.50 to 18.00
Old steel car axles	16.50 to 17.00
Heavy melting steel	12.50 to 13.00
No. 1 railroad wrought	15.00 to 15.50
Iron track scrap	12.50 to 13.00
Wrought pipe	10.50 to 11.00
Cast borings	7.00 to 7.50
Wrought turnings	8.50 to 9.00
Heavy cast scrap	13.00 to 13.50
Railroad malleable	13.00 to 13.50
Stove plate	11.00 to 11.50
Grate bars	10.50 to 11.00

BIRMINGHAM, ALA.

Ending of the Coal Miners' Strike Brings Relief.

Sept. 7.

There is a better feeling all around in the Alabama pig iron and steel market, the settlement of the strike in the coal mining fields being the principal reason for the decided change. The governor of Alabama forbid the miners from placing tents in which to care for their evicted members and the national officers of the United Mine Workers called off the strike, which was endorsed by the district organization officials, and there is a general resumption of operations at

coal mines this week throughout the state. Steps will be taken at once to increase the output of pig iron. There has been no hesitation in the iron production throughout the state, but the furnace companies had to bring in large quantities of coal and coke with which to keep the iron makers in blast, causing more or less trouble and expense. This is soon to be avoided and before long all conditions will improve. In addition to the above, the demand for iron has been improving and short orders for immediate delivery of iron have been bringing $13 per ton, No. 2 foundry.

The activity at the steel plant of the Tennesee Coal, Iron & Railroad Co. at Ensley continues. The past month was a record breaker in almost every department. The plant produced 32,424 tons of steel rails in August, against 31,391 tons in March, this year, the greatest output that has been experienced. Last month 38,760 tons of blooms were produced, more than 2,000 tons over the next best month, which was in July.

The only rolling mills in operation in this district are in Bessemer, 12 miles south of Birmingham, and the property of the Tennessee company.

BRITISH IRON MARKET

Strength is Maintained and Optimistic Feeling Prevails.

Office of THE IRON TRADE REVIEW, Prince's Chambers, Corporation St., Birmingham, Eng., Aug. 29.

The British iron trade is at present doing little more than maintaining the strength of a week ago. There is a general levelling up of prices to bring those sections of the trade which failed to respond to the stronger tone a week ago on the level with the departments which showed an increase in prices at that time. At Middlesbrough, fair figures are obtainable for the higher qualities of Cleveland iron, but the lower brands still continue a drug in the market. This is due to the fact that the supply of lower qualities is greater than the demand. Yesterday's cash quotation for Cleveland iron was 52s 3d ($12.78), an increase of 6d on the previous day's figure. Advance quotations were, one month 52s ($12.72), and three months 51s 6d ($12.60). In the East Coast hematite department things are not so satisfactory as they might be. Though there have been considerably larger sales than for some time past, they have been at unsatisfactory figures, 55s ($13.46) per ton being realized for mixed numbers. This figure is too small to afford a profit to even the most favorably situated firms. Stocks at Connal's this month show a smaller increase than was anticipated in view of the shut-down of a week, on Tees Side recently, and the consequent reduction in local consumption. The amount in stock yesterday was reported to be 58,675 compared with 58,491 on the previous day. The local iron trade shows continued strength, and quite an optimistic spirit now prevails here, most people looking forward to a busy autumn trade. It is considered that the maintenance of strength indicates that the long-looked-for revival has at length set in.

METAL MARKET

NEW YORK.

Sept. 8.

Copper.—With a rather featureless market, the situation has manifested little change during the past week. Consuming interests have been buying but sparingly and price fluctuations have been within narrow limits. We quote: Lake, 13⅝c to 13⅞c; electrolytic, 13⅜c to 13⅝c; casting, 13⅛c to 13⅜c.

Pig Tin.—Spot metal is still selling in the neighborhood of 29c, New York, though there is practically no demand from consuming interests. The British market has held its strength surprising well.

Pig Lead.—Following the slight decline in the asking price reported a week ago, there has been a similar decline in the offered price, the current quotation being 4.55c to 4.60c, New York.

Spelter.—The situation continues strong, chiefly because of improved buying in the Middle West. We quote 4.70c to 4.75c, New York.

Antimony. — We quote Cookson's, 8¼c to 8¼c; Hallet's, 7⅞c to 8⅛c; ordinary brands, 7⅝c to 7¾c.

CHICAGO.

Sept. 8.

The past week has brought no appreciable change in the local metal market and both current demand and prices are without substantial change. We quote, Chicago delivery, as follows:

Lake copper, carload lots, 14c to 14¼c; casting, carload lots, 13¾c to 14c; pig tin, 31c to 31½c; spelter, 5c to 5.10c; pig lead, desilverized, 4.75c to 4.90c in 50-ton lots; corroding, 4.90c to 5c in 50-ton lots; car lots, 2½ per 100 pounds higher; sheet zinc, 7c list f. o. b. LaSalle in car lots of 600-pound casks; Cookson's antimony, 11c to 11½c; other grades, 10c to 10½c.

Scrap metals are spotty, the market being active and light in turns. Few dealers agree on prices, and considerable shopping of material is usually done before the transaction is finally closed. The following prices fairly represent the values local dealers place on the metals mentioned:

Copper wire, 11½c; heavy copper, 11¼c; light copper, 10½; heavy red brass, 10½c; heavy yellow brass, 8½c; light brass, 6½c; No. 1 red brass borings, 8½c; No. 1 yellow brass borings, 7½c; brass clippings, 8½c; tea lead, 3¾c; lead scrap, 4c; zinc, 3¼c; tin pipe, 25c; tin foil, 20c; pewter, 17c; electrotype plates, free from wood, 4¼c; electrotype dross, 2¾c; stereotype plates, 4½c; stereotype dross, 3¼c; prime slab zinc dross, $55 per ton.

SHORT WEIGHT COMMITTEE MAKES ITS REPORT.

The committee of representatives of consigners, transportation companies and consignees to consider the question of discrepancies between shipping and outturn weights of pig iron, coal and coke, appointed at a meeting held in Philadelphia last winter has submitted the following report:

The question of discrepancies in shipping and out-turn weights of pig iron, coal and coke was taken up. The discussion of the various topics covers an extensive range, stenographic report of which comprises some one hundred and four pages. Under the circumstances, there being present at this meeting representatives of so many diversified interests, foundrymen, rail and water transportation companies and coke and iron producers, it was impossible to pass any formal resolutions harmonizing the views of all present regarding the outcome of the day's discussion.

In a general way, however, it may be said that an understanding was in a measure, arrived at with some of the transportation interests and shippers, particularly regarding coke, whereby methods of check weighing might be employed to meet the railroads' requirements to establish losses of material in transit, and also to establish the correctness or incorrectness of the marked tare weight on cars.

The representatives of transportation interests declared that, to obtain a check weight establishing a loss of coke in transit, it would be necessary for the consignee to use the same methods in weighing at delivery point as at the shipping point. Cars must be weighed on railroad track scales by representatives of the railroad company, and the marked tare used as the light weight of the car. Errors in marked tare may be arrived at by the same method of weighing, after the car has been cleaned out to the satisfaction of the railroad company's representative.

A number of the representatives of the transportation companies expressed a willingness to allow for shortages, if established to their satisfaction by approved methods, and after such allowances had been made by the railroads, the shippers (where railroad weights govern the shipment) expressed a willingness to reimburse the consignee for shortages in material delivered.

As far as overcoming discrepencies in the short weight of pig iron is concerned, little of particular interest was accomplished. The discrepancies in all rail shipments did not appear to be very

extensive, and when such did occur, there seemed to be little difficulty in making an adequate adjustment. In rail and water shipments, however, it was impossible to obtain from the representative of this interest any definite statement which would lead to the solution of the difficulty in shipments of that class.

NO HEAVY RAIL BUYING

Expected This Year—Special Concessions Not to be Granted Car Builders.

(Special Telegram.)

Pittsburg, Sept. 9.—Rail manufacturers are resigned to the opinion that they will not receive any large new rail tonnages before the first of the year, but that with the opening of next spring there will be a big and imperative demand for quick delivery, inasmuch as there has been little or no replacement for practically a year. There has been some talk of granting special inducements to certain buyers, chief among them the steel car builders, in order to influence activity in this direction, but, to date, no action has been taken on the ground that the stimulated activity would be short-lived and conditions then revert to the present point.

Mill operations in structural material are fairly good and operating schedules on light shapes are better than they have been for several weeks. Fabricators, however, report that there is less inquiry despite the fact that architects are now working on more plans than at any time during the depression. The McClintic-Marshall Construction Co. has secured the contract to erect buildings for the new E. N. Byers Co.'s plant at Girard, O. Bids for the Monongahela bridge will be opened Thursday.

HARRIMAN CAR ORDERS.

(Special Telegram.)

New York, Sept. 9.—Harriman interests have placed contracts for 5,100 cars out of the inquiry for 7,000. The orders are distributed among several builders, but the distribution is not announced. Not all of the cars ordered are steel.

The New Haven's rail order for 4,000 tons of open-hearth and 800 tons of Bessemer is practically settled and will be announced today or tomorrow. Scattered rail sales aggregate 800 tons by the leading interest.

HEAVY SALES OF WIRE.

(Special Telegram.)

New York, Sept. 9.—Bookings of the American Steel & Wire Co. during August were in excess of 140,000 tons, which is considerably above the average, although this is usually a dull month. Sales of structural steel and plates into Canada have been very heavy during the past 10 days.

BUFFALO.

Cancelled Machinery Orders Now Being Filled—Railroads Lag.

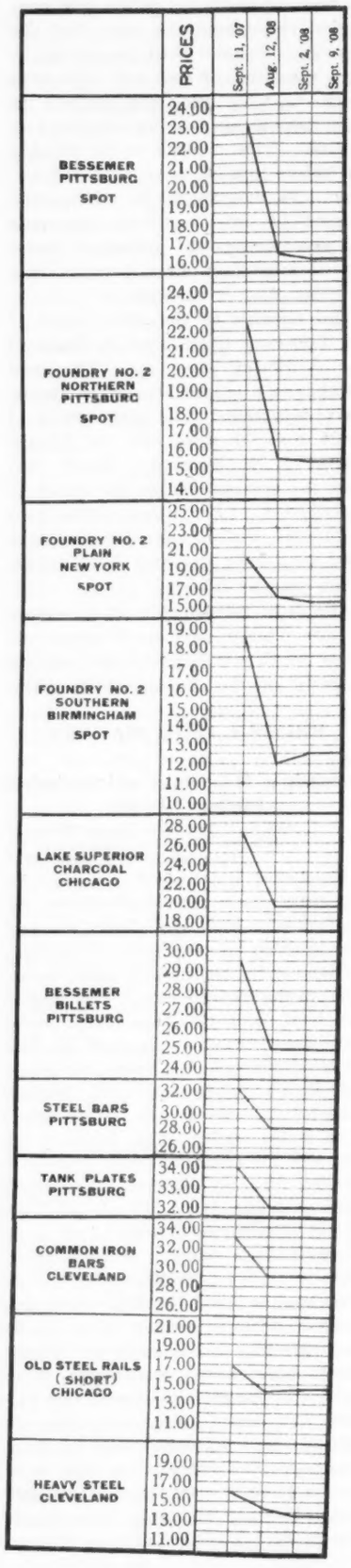
Office of THE IRON TRADE REVIEW,
932 Ellicott Square, Sept. 8.

A very significant feature of this machinery market was given this week by J. L. Osgood, when he stated that a large machinery order which had been cancelled by the purchasers during the depression of a year ago had been filled recently, the buyers having returned to the market with more confidence. Several incidents of this character are reported by the trade, tending to remove apathy and serving as a stimulus to business. The machinery market has certainly not recovered from the shock of last year, but it is, beyond doubt, getting its balance again. For a good many months, it has been extremely dull in this line, but conditions now, compared with eight months ago, are decidedly better.

From reliable sources it is learned that the past six weeks have supplied ground for more confidence in the form of a steady, progressive movement in the market. Two months ago, inquiries picked up, but not sales. Orders showed no improvement of note until recently. Now the proportion of inquiries resulting in sales is steadily increasing.

Machinery men as well as the buyers now explain that most of the old material which has been used in piecing out the period of financial depression, has been utilized and it will soon be necessary to get into the market for new material. Railroads and other big consumers, when expenses were curtailed, fell back on old machinery and avoided every possible expense along this line. The improvement of late has lifted the average business of machinery concerns to 65 per cent of normal, but this does not include the portion of machinery trade furnished by railroads. It is estimated here that the railroads in this territory are buying only on a basis of 50 per cent of normal. This average, it is confidently believed, will soon be considerably raised. Such a difference exists here between the demand of the railroads for new machinery as compared with other large consumers that it is found best to give the averages separately. The railroads are running about 15 per cent behind other buyers in the increase of trade.

PRICE CHART.



August Shows Heavy Pig Iron Increase.

The pig iron production for the month of August, shows a comparatively heavy increase over the July production, both in total tonnage made, and in the average daily production. Complete returns from the makers show that the total pig iron produced, including ferro and spiegel, amounted to 1,366,019 tons for August, compared with 1,228,604 tons in July, an increase of 137,415 tons. This shows an average daily production for August of 44,065 tons, compared with the daily average for July of 39,632 tons. The merchant companies produced 450,513 tons during the month, and the non-merchant 896,405 tons. The increase was most marked in non-merchant or steel making irons, being 106,963 tons; the increase in merchant production being less than one-third of that, or 30,712 tons as compared with the July figures.

The greatest increase in production in the past month was in Pennsylvania, which produced 80,840 tons more iron in August than in July. Of this, the larger portion went to the credit of the steel companies, only 12,816 tons of the increase being produced by merchant companies. Ohio was next to Pennsylvania in the rate of increase, showing a gain in total production for August of 42,187 tons over the July production. Approximately 40,000 tons of it went to the non-merchant or steel making companies. Alabama showed a slight falling off, as did Illinois. Alabama showed an increase of over 7,000 tons in merchant iron, but a decrease of over 9,000 tons in steel making iron; Illinois showing a similar increase in merchant production of about 5,000 tons, and a decrease in non-merchant of about 6,000 tons. Production in New York increased approximately 16,400 tons over the July production, the increase being divided about equally between the merchant and non-merchant producing stacks. The Tennessee, Maryland and Georgia groups all showed a slight falling off in production.

The number of stacks added to the producing column in August was 181, compared with 166 in July, a gain of 15. Figures show that the number of stacks blowing on the last day of the month showed a percentage of 40.3 of output which it was possible for the total number of stacks to make, compared with 39.9 per cent possible in the previous month. Pennsylvania showed the largest increase in active stacks, which was six; Ohio showing an increase of three, Alabama, one; Virginia, one; New York, four; Illinois, one; and Tennessee one. Wisconsin reduced its number of blowing stacks to one, and the one blowing stack in Texas blew out during the month. The following is the total production by months for this year, compared with the total production month by month for last year:

	1908.	1907.
January	1,043,374	2,194,801
February	1,086,809	2,047,036
March	1,229,856	2,216,709
April	1,155,122	2,226,708
May	1,168,002	2,291,030
June	1,106,300	2,237,420
July	1,228,604	2,253.243
August	1,366,019	2,243,656
September	.....	2,174,148
October	.....	2,359,690
November	.....	1,820,558
December	.....	1,234,733

AUGUST FURNACE REPORT.

STATES—	NO. OF STACKS.	NO. IN BLAST ON LAST DAY OF MONTH. AUG.	NO. IN BLAST ON LAST DAY OF MONTH. JULY.	PERCENTAGE OF TOTAL POSSIBLE OUTPUT MADE.	AV. DAILY CAPACITY IN BLAST LAST DAY OF MONTH.	ACTUAL TONNAGE MAKE. MERCHANT.	ACTUAL TONNAGE MAKE. NON-MERCHANT.	TOTALS. AUG.	TOTALS. JULY.
Pennsylvania	153	72	66	45.5	20,512.8	124,744	482,640	607,384	526,544
Ohio	63	30	27	46.2	8,733.0	88,690	170,672	259,362	217,175
Alabama	46	20	19	42.6	4,066.0	89,816	33,608	123,424	124,870
Virginia	24	12	11	46.3	1,117.2	32,121	———	32,121	28,294
New York	24	12	8	40.6	3,292.8	45,119	37,772	82,891	66,419
New Jersey	9	2	2	22.2	544.0	16,866	———	19,866	14,830
Illinois	25	15	14	57.3	4,900.5	15,278	122,349	137,627	139,136
Tennessee	18	9	8						
West Virginia	4	1	1	31.6	869.0	19,206	4,822	24,028	25,656
Kentucky	7	0	0						
Maryland	4	2	2						
Wisconsin	6	1	2						
Colorado	6	2	2	36.0	1,641.0	7,420	44,542	51,962	55,442
Indiana	1	1	1						
Georgia	2	0	0						
Texas	3	0	1						
Minnesota	1	0	0	23.3	346.2	11,253	———	11,253	14,076
Michigan	2	1	1						
Missouri	1	1	1						
Spiegel—All states								8,039	6,958
Ferro—All states								11,062	9,204
Totals	399	181	166	43.3	40,839.8	450,513	896,405	1,366,019	1,228,604

BLAST FURNACE NOTES.

The Jones & Laughlin Steel Co. blew in its fifth Eliza stack Aug. 27.

The Jackson Iron & Steel Co., Jackson, O., will blow in "Jisco" stack about Oct. 1.

Clifton No. 2 stack, of the Alabama Consolidated Coal & Iron Co., was fired Aug. 11.

The Roanoke, Va., stack of the West End Furnace Co. went into blast Aug. 18.

The Battelle, Ala., stack of the Lookout Mountain Iron Co., which has been out of blast since March, 1906, is being offered for sale.

Two record runs were made by stacks of the Tennessee Coal, Iron & Railroad Co. during August. Alice stack blew 7,452 tons, the best previous record being in July—7,194 tons; Bessemer No. 4 exceeded her best previous record in July of 5,899 tons.

The third stack of the Buffalo Union Furnace Co. went into blast Aug. 21.

The Josephine stack of the Corrigan McKinney Co., was blown in Aug. 6; the Genessee, N. Y.,. stack Aug. 9.

The Lackawanna Steel Co. added two stacks to the New York state active list in August, No. 4 furnace blowing in on Aug. 17, and No. 2 furnace Aug. 23.

The stack of the Globe Iron Co., Jackson, O., made about 95 per cent of its August output running above 8 per cent silicon, a fine record.

The newly constructed stack of the Hamilton Iron & Steel Co., Hamilton, O., was blown in Aug. 22, at 11:05 a. m. The stack will be known as the "Hamilton." The name "Miami" has been taken by the company for a brand name for its foundry iron.

The Hall (Pa.), stack of the Republic Iron & Steel Co. was fired Aug. 17.

The Adrian Furnace Co., DuBois, Pa., blew out its stack Aug. 29, for repairs, and expects to be shut down for about three months.

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SOME OF GOMPERS' FALSE STATEMENTS.

The celebration of Labor Day this year was characterized by some features which were highly creditable to organized labor. In many cities, the processions were well conducted and the neat appearance of the organizations and the good behavior of the marchers elicited hearty commendation. Some of the speeches of the leaders were temperate and not in any way subject to unfavorable criticism, but on the other hand, some of the utterances were not only ill-advised, but absolutely untruthful. Samuel Gompers, the president of the largest body of affiliated unions, a man who ought to set an example of the highest kind for all labor leaders and workingmen in general, issued an address which is a tissue of misrepresentation.

In opening his address, Mr. Gompers declares that the financial troubles of last October were due to "a monstrous, unnecessary and purely artificial panic thrust upon our people through the manipulations of the princes of finance." This assertion, although entirely lacking in foundation of truth, and calculated to arouse bitter class animosity, might have sprung from a brain affected by long brooding over imaginary wrongs until the honest, though erroneous conviction had arisen that a few wealthy men had really and maliciously brought the panic on the country. As to another statement made by Mr. Gompers, one cannot entertain so charitable a construction. Mr. Gompers boldly asserts that the supreme court of the United States has declared labor unions to be trusts, conspiracies and unlawful combinations in restraint of trade, and that every member of every organization of labor is liable to prosecution by federal authority and to a fine of $5,000 or imprisonment for one year, or both, in the discretion of the court; also liable for treble damages in cases where workingmen exercise their right of voluntary associated effort to protect their personal rights and liberties. When Mr. Gompers made that assertion, he knew it was false. The supreme court decision to which he refers, that of the Danbury hat case, was so recent and he was so thoroughly familiar with the terms of the decision that it is perfectly clear that he wilfully misreported the words of the court in order to inflame workingmen against the courts.

Neither the United States supreme court, nor any other federal court, has ever condemned a labor organization for organizing, nor has it attemped to prevent any labor organization from using peaceable and lawful means to advance wages or in any other proper way to improve the conditions of its members. It is true, however, that the supreme court in the Danbury hat case declared that a boycott carried on by a union of labor organizations is an unlawful combine in the meaning of the Sherman act, and that such an unlawful combine is amenable to the same penalties as those which apply to the illegal acts of combination of capital. Declaring that a boycott is illegal is a far different proposition from asserting that men have no legal right peaceably to unite to promote their interests in a legal manner, thus issuing a sweeping edict on the illegality of all labor unions.

How long will the intelligent workingmen in the United States be misled by such false statements as those of Gompers and his ilk? The many thousands of toilers who read the newspapers and are well informed cannot tolerate Gompers without furnishing reason for questioning their own sincerity. Nor can the National Civic Federation continue to honor Gompers without alienating many of its most influential supporters. It would also be very interesting to find out how long the distinguished gentleman who invented the expression "short and ugly word" will receive into his councils the labor agitator to whom that expression can so well be applied.

THE SLOW FREIGHT MOVEMENT.

Statistics of daily freight car movement may make the slowness familiar, but they cannot make it acceptable. The committee on car efficiency of the American Railway Association has a large work cut out for it, and the slowness of the present movement is a guarantee that the work will be prosecuted with vigor by all parties concerned. There has been a little objection in some quarters to the statistics which the committee has freely made public, particularly those relating to the number of idle cars. The publicity is a feature to be commended, no matter how bad the situation is. It is always well to face the facts.

The statistics of idle cars in the past few months have been widely circulated, but lately it is pointed out that the actual freight movement has suffered a greater decrease than the statistics of the number of cars would indicate, for the reason that in dull times shippers are making smaller individual shipments than usual, and call for cars which will give them the minimum weight which carries the

carload rate. As a result, the idle cars in the past few months have had a much greater capacity per car than the cars which have been kept in use, so that the ton-mileage of freight has suffered a greater decrease than the freight car mileage.

Estimates have often been made of the average daily movement of freight cars, by taking the total number of cars in existence and the ton mileage, as summarized yearly by Poor and the Interstate Commerce Commission. To reach a result with such figures, it has been necessary to estimate the average carload. The statistics compiled by the committee on car efficiency of the American Railway Association do not require this estimation since these data are gathered also. The latest statistics of the committee run through April, the full figures for later months not having been compiled. For the four months, January to April inclusive, the average number of ton miles has been as follows per car mile, both empty and loaded, per loaded car mile, and per car day:

Freight ton miles,	Tons.
Per car mile	12.9
Per loaded car mile	17.7
Per car day	260.5

Dividing the ton-miles per car day by the ton-miles per car mile, the quotient is 20.2, which is the average number of miles run per car per day, loaded and empty. Dividing by the ton-miles per loaded car mile, the quotient is 14.7, which is the average number of miles per car per day, loaded.

There is shown an excellent proportion between the two, the movement of empties in proportion to loaded cars being quite small. The daily car movement is, however, from any reasonable viewpoint, extremely small. It is hard to realize that with all the rules in force regarding car detention by shippers and consignees, with the long average haul, varying from 130 to 137 miles in the past seven years, according to Poor's statistics, and with the rapid movement of cars when they are actually in motion, the daily average should fall so low.

The railroads are earnestly trying to expedite this movement. It would not be admitted that some effort has not always been put forth, but it is obvious that lately the effort has been more serious and intelligent than formerly. By an improvement in this direction the railroads can greatly increase their profits, by getting more revenue from their equipment without correspondingly increasing the expense.

The railroads have also made an effort lately to increase freight rates, and in this they have met opposition at some points, and support at others. Regardless of how opinions differ on this question, all who ship and receive freight should recognize that the railroads are themselves under the absolute necessity of doing something to improve their position. There is no doubt that they can make a great increase in their profits by a more rapid car movement. Such a change would benefit not only the railroads, but all who sell commodities or labor to the railroads, as the railroads are a great disbursing agent. That, however, would be but part of the benefit. Shippers of freight and consignees would also be benefited. It is always an advantage, merely on the score of convenience, for freight to be delivered promptly. The possibility of quick delivery often makes business, and leads to orders which otherwise would not be placed. There is another advantage, however, which can be reduced to dollars and cents, the saving in interest cost on material in transit. Such interest cost is always a complete loss. There is material idle which represents so much capital which is earning nothing. In the case of the more valuable metals, such as pig tin, the loss of interest on capital invested in material in transit is one of the large items of expense in transacting the business.

It is directly to the interest of all freight patrons of the railroads that they should be helped in their effort to expedite car movement. The economy which it is sought to cultivate would be an advantage to all concerned.

DISTINGUISHED VISITORS

Continue Their Inspection of Canadian Plants.

Toronto, Can., Sept. 5.—The Canadian Mining Institute summer excursion party to the number of about 80, including local men, visited the plant of the Nova Scotia Steel & Coal Co. at Sydney Mines, N. S., on Aug. 28. The prominent experts from abroad included H. Potonie and Ernst Kraynik, Berlin; Wm. Frechville, London Institute of Mining and Metallurgy; Samuel Mavor, Institute of Mining Engineers; Clifford E. Bloomer, Iron and Steel Institute; Hugh F. Marriott, I. M. M., London; Herman Wupperman, Dusseldorf, Germany; John Hogg, Cambuslang, Scotland; James Barrowman, Hamilton, Scotland; Andrew Watson, Glasgow; John Robertson, Glasgow; R. W. Tallis, South Wales; Wm. Campbell, New York; Bergrat Goebel, Arnsburg, Germany; D. B. Langford, London, and Mark Hurll, Mining Institute, Glasgow. The province of Ontario was represented by Prof. W. G. Miller, provincial geologist and president of the institute, and Deputy Minister of Mines T. W. Gibson, and Quebec by J. Obalski, superintendent of mines. They were escorted through the most important departments of the steel plant by President R. E. Harris, General Manager Thomas Cambley and Superintendent John Johnston. The steel works were in full operation. They were the guests of the company at North Sydney, where luncheon was served at the Eastern Club, among others present being Lieut.-Gov. Fraser, of Nova Scotia; James Ross, president Dominion Coal Co.; H. E. Burchell, manager of the Sydney Cement Co.. Prof. F. H. Sexton, on behalf of the Nova Scotia Mining Society, expressed appreciation of the hospitalities extended to the party. On the invitation of President Ross, the excursionists boarded his yacht and enjoyed a sail to Sydney, where they were entertained at a garden party at the residence of J. K. L. Ross.

Other points in Nova Scotia and Quebec visited were the Acadia Coal Co.'s colliery in Stellarton, the asbestos mines in the neighborhood of Twedford, Que., and the Canadian Chrome Co.'s Works, Black Lake, Que. The visitors arrived at Montreal on Sept. 2 and were entertained there by the local committee. The following day, the party spent at Niagara Falls, returning to Toronto Thursday evening. They left for Cobalt Friday.

HAD A GOOD TIME

And Inspected a Fine Coke Plant—Excursion of Pittsburg Foundrymen.

The September meeting of the Pittsburg Foundrymen's Association on Labor Day was the best in point of attendance and enthusiasm in the history of the association. The meeting took the form of a special excursion upon invitation of the Jamison Coal & Coke Co. to the mines and coke operations of the company in Westmoreland county, Pa., and was participated in by 196 foundrymen from Pittsburg and vicinity. Leaving Union station at 8 o'clock Monday morning Sept. 7, the special train composed of five coaches and the largest baggage car on the Pennsylvania railroad, the latter equipped as a special commissary, stopped at East Liberty, Wilmerding, Irwin and Greensburg, taking on delegations from each of those points, and then proceeded to the four coke making plants on the Alexandria branch of the Pennsylvania railroad. Here the visitors were conducted through the mines and washers and around the 1,200 ovens, of which 1,080 were in operation. The foundrymen followed the process of coke making from the mines through the washers, saw the coal taken from the bins, loaded into larries and charged into the ovens, and also watched the operation of drawing the day's production of foundry coke. An elaborate dinner of fried chicken, sweet potatoes and roasting ears was served in a grove adjoining No. 4 plant. Following this, the special train took the party to No. 2 plant where two picked teams finished the day with an exciting and enthusiastic baseball game, after which the foundrymen boarded their train and returned to Pittsburg.

At a meeting held after the baseball game, resolutions heartily thanking the Jamison Coal & Coke Co. and W. A. Johnson, sales manager, for the hospitalities extended, were adopted with enthusiasm.

The nominating committee of the foundrymen's association completed its work, and the ticket to be presented at the October meeting for officers through the year 1909, will be as follows: President, C. G. Gale, Pennsylvania Malleable Iron Co.; vice president, J. T. Speer, Pittsburg Valve, Foundry & Construction Co.; treasurer, J. S. Seaman, Seaman-Sleeth & Co.; secretary, F. H. Zimmer, Union Foundry & Machine Co.; executive committee, H. E. Field, Mackintosh-Hemphill & Co.; Benj. Fuller, Westinghouse Electric & Mfg. Co.; E. D. Frohman, S. Obermayer Co.; John A. Logan, W. A. Johnson, Jamison Coal & Coke Co.

FOREST FIRES

Cause Heavy Loss on the Mesabi—Mine Property in Danger.

Duluth, Sept. 6.—The fires that have been raging on the timber lands of the Mesabi range during the past week swept over the town of Chisholm on Saturday last, leaving but three buildings and causing a loss of several hundred thousand dollars. The mining towns of Buhl and Nashwauk are also hemmed in, with communication cut off and in danger of destruction. No lives are known to have been lost, but the flames are unchecked and extend over a large area of mining, timber and farming country. At Chisholm the fire advanced from the east and the locations of the Jordan and Hartley mines were destroyed. The Pillsbury location was also burned. The other mines endangered are the Shenango-Myers, St. Clair, Croxton, Glen, Clark, Chisholm, Pearce, Morrow, Monroe-Tener and Leonard. At Buhl are the Jennings, Kinney, Yates, Grant, Frantz and Sharon. While some of these mines are idle, the mine buildings and equipment are exposed. The LaRue, Crosby and Hawkins mines are at Nashwauk, but the brush is well cleared from the mine location.

This fire is so unusually severe that all of the mines in the fire zone are in danger, despite the clearings about the buildings. The long period of dry weather is responsible for forest fires throughout Michigan, Wisconsin and Minnesota, and at all of the mines of the Lake Superior district some trouble is being experienced, this being the worst season experienced in many years.

NEW BRITISH PATENT LAW APPLIES TO CANADA.

Some doubts having been entertained as to whether the new patents and designs act of 1907, which is now in force in Britain, would affect Canadian inventors as well as those of foreign countries, the British board of trade has set the matter at rest by announcing that the act applies to all patent holders of the United Kingdom, whether in British possessions or foreign countries. Under its operation at any time not less than four years after the date of the patent, any one may apply for its revocation on the ground that the patented article or process is manufactured or carried on exclusively or mainly outside the United Kingdom. If, after hearing the statements of the patentee and applicant, the comptroller thinks the reasons given by the applicant satisfactory, he shall revoke the patent, provided no such order conflicts with any treaty or arrangement with any foreign country or British possession. Canadian inventors holding British patents are therefore in the same position as foreigners and are threatened with the loss of patent rights unless they establish factories in Britain or arrange with a British firm to work their inventions.

Automatic Sprinklers for Schools.—The city of Buffalo has contracted with the General Fire Extinguisher Co., of Providence for the equipment of all the schools of Buffalo with automatic sprinklers as a safeguard against fire. Seventy-one schools are involved. The city of Jamestown, N. Y., has also contracted with the same company for similar equipments for all its schools. These contracts are the direct result of the agitation for the better safeguarding of the lives of school children.

LA BELLE REPORT.

(Continued from first page.)

the volume of business and the natural tendency on the part of costs to increase under such conditions, our costs for the last few months have been on a very reasonable basis. This condition has been brought about by a general retrenchment all along the line, a more willing disposition on the part of our workmen to render a fair day's work and a decreased cost of certain commodities of which we are buyers, such as coke, scrap and the like.

Another gratifying feature of the year's business was the small amount of losses incurred from bad debts, as notwithstanding the fact that the panic and resultant depression was as severe as any other this generation has experienced, the amount of losses to the company through failure of customers to settle have been infinitesimal. The fact that there were few important failures in the steel and kindred lines throughout the country was undoubtedly due to the good judgment and patience universally exercised by the creditor in making collections during the few months directly following the panic.

While it is impossible to foretell what the future has in store for us, it would appear that with the abundance of money, good crop situation and the absolute necessity on the part of the railroads to purchase extensively in the near future, the coming year should be a prosperous one.

Your company, as the statement

clearly shows, is in a sound financial position; your ore and coal properties are in a high state of development, and your manufacturing plants are capable of producing a larger tonnage of a more profitable line of goods than ever before, and it only requires business to again resume normal proportions to enable your company to show larger earnings than at any time in its past history.

On other subjects, President Scott says:

Consolidated Balance Sheet, June 30, 1908.

ASSETS.

Capital Assets:		
Real estate, plant, buildings, machinery, etc., at Steubenville and Wheeling		$ 9,275,708.19
Mining and gas and oil properties and equipment, etc.		1,754,430.08
Other assets		45,000.00
Total capital assets		$11,075,138.27
Current Assets:		
Inventories of manufactured product, materials and supplies at cost	$2,990,397.57	
Accounts and bills receivable	845,951.80	
Cash	736,867.89	
Total current assets		$ 4,573,217.26
Deferred Charges to Future Operations:		
Unexpired insurance, etc.		6,196.89
		$15,654,552.42

LIABILITIES.

Capital Liabilities:		
Capital Stock:		
Total authorized issue		$10,000,000.00
Total issued—74,366 shares of $100 each		7,436,600.00
First Mortgage 6 per cent Gold Bonds:		
Total issued	$2,500,000.00	
Less—in treasury	50,000.00	2,450,000.00
Capital Stock Dividend:		
Dividend of 33 1/3 per cent declared but not paid June 30, 1908		2,478,866.67
Total capital liabilities		$12,365,466.67
Reserves:		
For general depreciation	$ 750,000.00	
For exhaustion of minerals	179,450.07	
For relining furnaces, extraordinary repairs and contingencies	228,594 88	$ 1,158,044.95
Current Liabilities:		
Accounts payable	$ 350,655.93	
Wages, taxes and royalties accrued	173,113.39	
Bond interest accrued and coupons not presented for payment.	22,885.00	
Cash dividends on capital stock	148,732.00	
Total current liabilities		$ 695,386.32
Surplus at June 30, per annexed statement		1,435,654.48
		$15,654,552.42

Minerals.

Your La Belle and Miller ore properties were operated almost continuously throughout the year with satisfactory results, both as to tonnage and quality of product. The Wacoutah mine was put on a producing basis last year for the first, operations being carried on, however, to an extent sufficient to demonstrate the fact that this property can be operated very economically and that the quality of the ore is well suited to the requirements of your blast furnaces. So far this season it has been found advisable to operate the La Belle and Miller mines only, no work being done at the Wacoutah, but inasmuch as this last named property is a "stripping" proposition, suspension of operations works no hardship, either in the way of detriment to the mine itself or the incurring of overhead expenses, as would be the case with a shaft mine. The production of the three properties for the fiscal year was as follows: La Belle, 52,866 tons; Miller, 237,501; Wacoutah, 156,302; total, 446,669 tons, or an increase in tonnage over last year of 33 1/3 per cent.

Coke.

Your coke property in Fayette county, Pa., was operated in full up to Nov. 1, but since then, owing to the low price at which coke could be purchased in the open market and the clearly apparent advantages accruing to the company by conserving its natural resources where possible, it was not deemed advisable to operate a greater part of the plant than was necessary to hold the works organization together. The coke production for the year was 63,433 tons, or a decrease of 29 7/10 per cent compared with the previous year.

Steubenville Mine.

Your Steubenville mine produced during the year 126,251 tons of steam and heating furnace coal, an increase of 17 8/10 per cent over the year before.

The continued and increasing advantages to the company from having an almost inexhaustible supply of coal located so near the point of consumption is emphasized more and more as time goes on.

Manufacturing Plants.

Your manufacturing plants were operated during the first four months of the fiscal year to their full capacity, producing a greater tonnage than in any similar period in the company's history; but during the succeeding eight months, owing to the business depression, operations were carried on on a basis of from 33 1/3 per cent to 60 per cent only, the production for the year and a comparison with the previous year being as follows:

Pig iron	173,324 gross tons.	Decrease, 22 2/10 per cent.
Slabs and billets	189,392 gross tons.	Decrease, 34 4/10 per cent.
Plates and skelp	146,106 gross tons.	Decrease, 35 per cent.
Sheets	11,551 gross tons.	No production last year.
Tubular goods	43,708 gross tons.	Decrease, 25 per cent.
Nails	117,555 kegs.	Decrease, 20 8/10 per cent.

Pay Roll.

During the year there was paid out in salaries and wages $2,208,063.12, the average number of employes being 2,993. This includes ore mines in Minnesota and coke works in Pennsylvania.

Shipments.

The value of the shipments for the year aggregated $8,910,712.32, a decrease of 28 5/10 per cent.

Plant Additions.

During the fiscal year the sheet and plate mills referred to in last year's statement as being in course of construction have been completed and put in operation. This addition consists of one 72-inch three-high plate mill, two jobbing mills and eight light sheet mills, together with galvanizing and roofing departments.

Owing to lack of business, it has not been possible as yet to fairly demonstrate what the new department will do in the way of tonnage and earnings, but with the return of normal conditions, this branch of the business should and doubtless will show satisfactory returns.

Oil Property.

Since the last annual statement was presented, your company acquired title to a tract of land of 175 acres, lying across the river from and a little south of the Steubenville works. In making tests for gas on this property, oil was discovered in paying quantities, and up to the end of the fiscal year there had been put down 12 wells, of which 11 were producers, the total production from Dec. 12, last, the date of the drilling in of the first well, to June 30, being 95,343 barrels. Since June 30 to date, there have been drilled in 11 additional wells, all of which are good producers. From present indications, the property should show a still further increase in production, insuring to the company a steady income of substantial proportions for some time to come.

Income Account and Statement of Surplus.

Net earnings from operations and from the sale of oil		$1,814,771.31
Less:		
Provision for the exhaustion of minerals and the extinguishment of lease values, development, etc.		59,132.15
Net profits for the year		$1,755,639.16
Deduct:		
Interest on first mortgage 6 per cent bonds	$ 147,000.00	
Cash dividends on capital stock at $8 per share	594,000	741,928.00
Surplus for the year		$1,013,711,16
Surplus at July 1, 1907		3,150.809.99
		$4,164,521.15
Deduct:		
Stock dividend at 33 1/3 per cent declared but unpaid June 30, 1908	$2,478,866.67	
Appropriation for the depreciation of capital assets	250,000.00	2,728,866.67
Net surplus carried to balance sheet		$1,435,654.48

Funds.

Consistent with the board's action of the last two years, an addition of $250,000 has been made to the general depreciation fund, increasing that fund to $750,000. As will be noted by the reading of the report, additions have also been made to the relining, rebuilding and contingent funds, and it is the opinion of your management that the amounts appropriated to these funds during the year have been liberal and quite sufficient to care for any contingency of an ordinary character that will likely arise.

Dividends.

In addition to the regular 8 per cent cash dividend paid throughout the year, your board of directors, believing that conditions warranted it, authorized a stock dividend of 33 1/3 per cent (covering which certificates were issued during the month of August), thus increasing the company's outstanding capital liabilities from 74,366 shares of $100 each to 99,155 shares.

PERSONAL.

James Parker has been promoted to auditor of the Brier Hill Iron & Coal Co., Youngstown, O.

J. H. Plummer, president of the Dominion Iron & Steel Co., Sydney, N. S., has purchased a handsome residence in Toronto which he will shortly occupy.

R. D. Day has been named manager of the New York office of the Mesta Machine Co. Mr. Day has been in the company's offices at Pittsburg for many years.

Geo. B. Miller has accepted his former position as traveling salesman for the Empire Iron & Steel Co., Niles, O., after being in other business for several years.

C. D. Gibson, formerly with the Niles-Bement-Pond Co. in its Chicago office, has severed his connection with that house and is now identified with the McDowell Stocker Co., of Chicago.

Henry E. Pridmore, manufacturer of molding machines, Chicago, sails for his annual visit to Europe next Saturday by the Anchor Line steamship California. He expects to return home in a month.

W. M. Heaton, a chemist in the Bessemer department of the Colorado Fuel & Iron Co., at Pueblo, Colo., has resigned and has been appointed instructor of chemistry and physics at Centennial high school, Pueblo.

E. E. Ellis has assumed the duties of geologist to the Tennessee Coal, Iron & Railroad Co., with headquarters at Birmingham, Ala. Until recently he was assistant geologist for the Oliver Iron Mining Co., at Duluth.

Burton L. Verner has been appointed assistant purchasing agent of the Republic Iron & Steel Co., with headquarters in the Chicago offices. The main office of the purchasing department has been transferred to Pittsburg, where Mr. Lee is now permanently located.

George W. Sells, superintendent of the Joliet, Ill., plant of the American Steel & Wire Co., has been appointed superintendent of the company's new mill at Cleveland. Frank Whitgrove, assistant superintendent at the Rockdale mill, will take Mr. Sells' place at Joliet.

Elias Jenkins, who for 27 years has been with the Mahoning Valley plant at Youngstown, O., of the Republic Iron & Steel Co., has resigned his position to enter the accident insurance business. Mr. Jenkins stands high in the counsels of the Amalgamated Association, and has missed but one annual conference since 1899. He is one of the national trustees of the association.

Edward Anglin, general superintendent of the Sharon Steel Hoop Co., since its organization eight years ago, resigned his position Sept. 1. He was succeeded by Geo. W. Short, who for several years has been superintendent of the steel mill department of the company.

John Mitchell, formerly president of the United Mine Workers of America, has assumed full charge as chairman of the Trade Agreement Department of the National Civic Federation. Mr. Mitchell will make his headquarters at the office of the Federation in New York City and devote his entire time to its work.

J. V. Allen, of the machinery firm of Newell & Allen, has been elected secretary of the Alabama Coal Operators association, and will perform the duties of chief commissioner. His office will be in the Brown-Marx building, Birmingham. The association represents between 90 and 95 per cent of the coal production of Alabama.

OBITUARY.

E. H. Rand, pioneer ship builder and business man of Manitowoc, Wis., and founder of the Rand & Roemer Co., recently dissolved after more than 40 years of existence, died Sept. 2, aged 74 years.

Patrick J. Quinn, manager of Quinn Bros.' Foundry & Machine Co., Elkins, W. Va., died Aug. 28 of typhoid fever, aged 52 years. His brother, who was interested with him in the business, died last January. His widow, two daughters and a son survive.

James L. Predmore, aged 86, pioneer business man of Youngstown, died at Youngstown Sept. 1. Death was due to paralysis. Mr. Predmore at one time owned and operated a foundry plant at Youngstown which afterward formed the nucleus about which the present Wm. Tod Co. of Youngstown was built.

Louis Kissel, an aged Hartford, Wis., manufacturer, who was shot by a disgruntled employe Aug. 20, died Aug. 28, in a Milwaukee hospital. He was born in Germany, Aug. 14, 1838, and came to America at the age of 19, settling in Wisconsin. He was at the head of various business enterprises; the Hartford Plow Co., the Kissel Motor Car Co., the First National Bank of Hartford, and similar enterprises. He is survived by a wife, two daughters and four sons, the latter all with their father in business.

Thomas M. Richards, first vice president of the Philadelphia & Reading Coal & Iron Co., died Sept. 5 at Philadelphia, after an illness of five months. He was one of the best known men connected with the anthracite coal trade, having been identified with it for 50 years. He was born in Reading, Pa., Oct. 23, 1835, and entered the service of the Reading railway as a clerk in the office of the division superintendent. He became first vice president of the coal company three years ago.

William A. Cranston, secretary of the American Screw Co., died unexpectedly Sept. 3, at his home at Pawtuxet, a suburb of Providence, R. I., aged 60 years. He had been connected with the American Screw Co. practically all his business life, and had become secretary and part owner by working in the company's services beginning as office boy. He had been one of the Providence representatives to the General Assembly, and was prominently identified with various charitable and municipal institutions in Providence.

Joseph Kountz, one of the original organizers of the Braddock Wire Co., Rankin, Pa., now the Braddock department of the American Steel & Wire Co., died at the home of his son, Dr. W. P. Kountz, Charleston, W. Va., last week at the age of 72 years. Mr. Kountz was born in St. Louis and as a boy came to Pittsburg where he became a steel melter in the employ of Singer-Nimick & Co. Aside from the Braddock Wire Co. he organized the Pittsburg Wire Co. at Braddock which was later absorbed by the steel corporation, and another foundry was the organization of the Aliquippa Steel Co., Aliquippa, Pa., now a part of the Crucible Steel Co. of America. He was also connected with the Columbia Steel & Shafting Co.

Joseph Bell, one of the pioneers in the iron business in the Wheeling district, died in that city, Aug. 31, aged 89 years. He entered the iron business in 1850, being connected with the Belmont mill and during war times associated with Thomas Achison in buying the Wheeling Iron & Nail Works. Later with his brother David he bought the old Stewart foundry at Wheeling and operated it as a stove foundry for 25 years, afterward moving it to Muncie, Ind. He was one of the organizers of the Aetna Iron Works, later consolidated with the Standard, and now the Aetna-Standard plant of the American Sheet & Tin Plate Co. He was one of the original organizers of the Wheeling Steel & Iron Co., and a director until he resigned owing to old age.

AMONG MACHINERY MAKERS.

NEW YORK.

Important Purchases Soon to be Made by Isthmian Canal Commission.

Office of THE IRON TRADE REVIEW, Room 1005, No. 90 West St., Sept. 8.

The New York machinery market manifests little change. There is still an almost complete absence of buying on railroad account, and current business is confined to individual tools, for the most part. Dealers generally pronounce the situation more encouraging, with prospects for some improvement in demand during the fall, and August, in fact, showed a fair gain with a number of houses, but business is still far from the normal and will probably continue so until transportation lines and other large interests begin a more widespread buying movement. Requirements of the Isthmian Canal Commission and of those in charge of canal and water improvements in New York state are important contributions to the present activities.

A purchase of special machinery running close to $25,000 in cost is just being completed by the Roebling Construction Co., Flatiron building, New York City. This company has been manufacturing an expanded metal lath at its New York plant, but will shortly begin its production at San Francisco and Chicago. Considerable experimental work has been done on the machinery required for this work, as a result of which seven special cutting and slitting machines and three stretching machines have been ordered, the bulk of this business being secured by the Waterbury Farrel Foundry & Machine Co., through its New York office.

It is understood that an early disposition will be made of the equipment of the Providence Steel Casting Co., Providence, R. I., recently purchased at receiver's sale by Frank Stender, of that city. The building will be used for the manufacture of cement blocks. The equipment includes a Tropenas converter of two and one-half tons' capacity, a 10-ton crane, water tube boilers of 250 horsepower with engines, dynamo and air compressor, two Whiting cupolas, pneumatic hoists and a variety of motor-driven machine tools. The plant has been idle for about two years.

The Lidgerwood Mfg. Co., 96 Liberty street, New York City, has received what is probably the largest contract for cableways ever awarded. This installation is designed for the handling of materials in connection with the great Gatun locks, which will comprise two 110-foot channels about 4,000 feet long. The order is for four duplex cableways, all traveling and all of 800-foot span. They will be electrically operated and equipped for control locally from the lock walls. Those employed in unloading materials from barges will be fitted with Brown grab buckets, while those spanning the locks will be equipped with an aerial dumping device. They will be supported on 14 85-foot steel towers, the contract for the manufacture of which will probably be sublet. Considerably over $300,000 is involved in this cableway order.

A number of important purchases are shortly to be made by the Isthmian Canal Commission. Bids close Sept. 14 on an assortment of supplies including a large quantity of bolts and nuts, spikes and washers, reamers, steel cables, a 21-cubic foot orange-peel bucket, six pneumatic air drills, several motors, wet emery grinders, and a considerable lot of fire brick. Another lot of supplies, on which bids will close Sept. 24, includes two trolleys and bridge drives complete with motors for 10-ton electric traveling cranes, four Scotch marine boilers, an assortment of soft steel billets, 600 feet of 8-inch leather belting, 900 dozen hack saw blades, a miscellaneous lot of calipers, chisels and other small tools and a large quantity of lubricating oils and chemicals.

On Sept. 21 the canal commission will receive bids on 200 all-metal double dump cars of 12 yards capacity. These are of particularly heavy design for the handling of earth and large rock loaded by 70 and 95-ton steam shovels. On Sept. 28 bids go in on the furnishing of a complete industrial railway, including 12 electric locomotives, 24 steel flat cars and about three miles of 40-pound trackage. This is to be a double tracked road for the handling of mixed concrete at the Gatun locks. It is announced that the contract for 10 locomotives for use at the Porto Bello rock-crushing plant has been awarded to the H. K. Porter Co., Pittsburg, at a bid of $5,945 each.

CINCINNATI.

Demand Confined Largely to Orders for Prompt Shipment.

Office of THE IRON TRADE REVIEW, First National Bank Bldg., Sept. 8.

Conditions show little change from week to week, although the scattered orders coming in are about as plentiful as in the preceding week. The demand appears to be confined to orders calling for prompt shipment to replace worn out equipment or special machines varying from stock types. Occasionally a list of installations is submitted, but most of the business and inquiry are for single machines. Some shops have enough confidence in the future to make stock, but as a rule conservatism prevails, and the shops are not making any more stock than can be avoided, and are cutting down their lots in running through stock sizes. The outlook is regarded as depending largely upon the result of the presidential election and this feature of the situation is a matter of earnest discussion from shop to shop.

The American Tool Works Co. is making improvements in the way of reconstruction of its offices, and also the exterior of the plant. The company is also taking out a number of machines and replacing them with newer types.

The directors of the Industrial Bureau, in which machine tool men are considerably interested, have arranged for their annual excursion. A special train consisting of four coaches and two gondola cars, equipped with benches for observation purposes, will visit the plants along the Big Four road. The trip contemplates visits to the Cincinnati Horseshoe & Iron Works at Cleves; The Philip Carey Co., at Lockland, and the Stacey Mfg. Co., together with other lines of industry located on the tracks of the Big Four. Provision has been made for about 200 members and guests. The date has been set for Thursday, Sept. 10.

Wm. Lodge, president of the Lodge & Shipley Co., who is now abroad, is expected to return about Oct. 1.

MILWAUKEE.

Many Plants Operating 80 Per Cent Capacity—Improvement Continues.

Milwaukee, Wis., Sept. 8.—The steady improvement that has been taking place with Milwaukee machinery manufacturing plants during the latter part of the summer seems to have been the most important factor in the iron and steel situation in this part of the country. Milwaukee is the seat of many machinery manufacturing concerns, especially those making a specialty of all forms of productive machinery. The return of confidence and the revival of general business have meant the placing of larger orders for machinery. Man-

ufacturers say that producers all over the country seem to realize that at no time has it been possible to secure equipment as cheaply as at the present time. This fact added to the conviction that later all plants will be at capacity operation and the filling of orders will be much more difficult, has meant nothing short of a revival of the machinery business, say Milwaukee manufacturers. It is conceded that few, if any, plants are operating at full capacity, but it seems to be the general opinion that upon the average, 80 per cent of the normal would be a fair estimate of present operations. Compared with conditions in the machinery field in Milwaukee only a few months ago, this means a wonderful improvement.

Several scattering iron works are to be found at various points about the state. These all report that business conditions are decidedly better and that the increased demand from machinery manufacturers is largely responsible for the change. Judge S. W. Lamoreux, president of the Beaver Dam Malleable Iron Works at Beaver Dam, Wis., was a recent Milwaukee visitor and reported a most optimistic situation at his plant.

"Our works are running at full time now," said Judge Lamoreux. "It is a curious thing, but we shipped more tons during July than we did during the same month last year and more during August than for the same period of the past year. Other mills about the country are starting up. Occasionally some of our men have left us and gone where there were offers of higher wages than we are paying and we have had to go to Chicago to get men to take their place. I would not be surprised to see most of the iron manufacturing plants in the country in operation within the next 30 days."

More ground was covered by the machinery exhibits at the Wisconsin State Fair in Milwaukee, Sept. 7 to 11, than at any time in the history of the fair association. Double the acreage was devoted to machinery this year and in order to give additional space, the forfeited right of way of the Chicago & Northwestern railway was made use of. The machinery department included exhibits of practically every style of agricultural machinery, steam, gas and gasoline engines and much producing machinery.

Arrangements are being completed so that the students of the new engineering course at Marquette university, Milwaukee, will be able to do their required work at the plant of the Allis-Chalmers Co. The college course will be limited to eight months and the remaining four months will be given over to practical work at the large Allis-Chalmers works. A two-years' course, embracing mechanical, electrical and civil engineering branches, has been established. Prof. John C. Davis, formerly of Cornell university, is dean of the new department.

In a recent message to the Milwaukee common council, Mayor Rose recommended the erection during the coming year of five bascule bridges. The new structures will cost in the neighborhood of $800,000 and the council seems disposed to sanction their erection.

In accordance with the increased demand for machinery of all kinds, the Allis-Chalmers Co. has placed its employes in the gas engine department on a 10-hour a day schedule.

The Bucyrus Co., manufacturer of steam shovels at South Milwaukee, Wis., has increased its capital stock from $300,000 to $1,000,000, all of the new stock to be placed with the present stockholders in due time. "We have been considering an increase in capitalization for some time," said Secretary E. K. Swigart of the company. "The step is simply the result of a natural growth of the business which has expanded beyond its former bonds. At least one half of the new stock will be disposed of to the present stockholders of the company and the remaining portion will be held in the treasury for a time. No improvements of magnitude are contemplated at the present time."

The Vilter Mfg. Co.'s officers report that business is "coming right along" and everything is satisfactory. In the words of President Vilter:

"The number of contracts we received during August and which we are now filling will convince that our business reports for August, which were the starter, were not temporary, but that business is so good that we are able to keep our night force working continuously. Two weeks ago we started our double shift and there has been nothing to force a let-up; on the contrary, night work has become absolutely necessary."

Among the contracts mentioned are these: 100-ton refrigerating plant for Butchers' Slaughter & Melting Association, Boston, Mass., including a 20 x 42 Corliss engine, and 16 x 32 horizontal double acting ammonia compressor; 50-ton refrigerating plant for the Gridley Dairy Co., Milwaukee; 25-ton plant for Congressman J. D. Bowersock, Lawrence, Kan.; 100-ton plant for C. F. Vissman & Co., Louisville, Ky.; 1-ton plant for James Grant, Belize, British Honduras; 20-ton plant for Llarena & Co., Vera Cruz, Mex.; large orders for pipe fittings from Northwestern Iron Co., Mayville, Wis., and for John P. Squire & Co., Boston.

INDIANAPOLIS.

Several Important Contracts Awarded —Plants Resuming.

Indianapolis, Ind., Sept. 5.—The month just passed was by far the best of the year for local manufacturers of machinery. September starts with some very good contracts.

A charter has been granted the Utility Machine Co., organized with $25,000 capital at Evansville last week. The company will establish a plant immediately for the manufacture of a large line of machinery and also expects to do repair work. S. W. Miller, C. I. Neumeken and D. D. Metcalf are the directors.

The secretary of state has just granted the Cleveland Ice Machine Co., incorporated in Ohio, permission to do business in Indiana. William V. Stewart will be the Indiana representative with headquarters at Lafayette. Of the $25,000 capital, $15,000 is to be represented here.

A contract for furnishing the mechanical equipment for the new municipal electrical light plant at Logansport was awarded last week to the Westinghouse Electrical Co. of Pittsburg. Its bid was $27,907.94.

The Simplex Railway Appliance Co. will open its factory at Hammond today, with 300 employes and expects to run practically full time from now on.

Further resumption of business in some of the largest plants in the state is reported. The Standard Steel Car Co., Hammond, expects to put 2,000 men to work this week on the 1,000 car contract for the Chicago & Alton railway.

The contract for the power and heating plants in the new factory of the Speed Changing Pulley Co. at Anderson, was let a few days ago to J. W. Brooks, 151 West Vermont street, this city. The Speed Changing Pulley Co. is now located in this city, but will move to Anderson as soon as its big plant is completed.

The shovel plant of the Indiana Rolling Mill Co., Newcastle, resumed operations last Monday. It had been closed for two weeks, owing to a recent fire, causing $50,000 damage.

THE MANUFACTURE OF WOOD-WORKING MACHINERY

A Shop in Which Each Operation is Specialized, and Each Workman a Specialist

In the manufacture of its varied products, comprising practically every different type of wood working machine, the American Wood Working Machinery Co., of Rochester, N. Y., has developed a system which involves the use of specialized operators working on machines or operations which may also be said to be specialized. The system developed is based on the theory that a man works at his highest efficiency when he performs one operation and one only, repeating this many times a day or week, as the case may be, until he is so proficient that the cost of production is reduced to a minimum. This company has recently completed on Lyell avenue, Rochester, what is probably the largest plant in the world for the manufacture of wood working machinery, and in this new plant this system has been developed to the highest possible degree.

A brief consideration of the various lines manufactured by this company will aid in understanding the system of manufacture. The American Wood Working Machinery Co. was formed by the consolidation of a number of independent companies in 1901. These independent companies operated 12 factories, a number of which were afterwards merged in the new Rochester plant. As far as possible the lines of machinery built in the Rochester plant are of similar character and comprise largely heavy planing mill and furniture machinery, and pattern shop machinery to a certain extent. Among the more prominent machines manufactured at the Rochester works may be mentioned surfacers, hand jointers, band saws, molders, flooring machines, timber sizers, lathes, boring machines, saw benches, shapers, etc. All of these machines must be accurately made, the parts well fitted and also interchangeable. To do this requires an extensive plant with equipment varied in character, and a liberal use of jigs and other devices for the production of accurate work. All of these are to be found in the new Rochester shop.

Where such a line of special machines is built, it will be natural to expect to find special machinery for making the component parts. This, however, is not wholly the case. The equipment of the plant is largely standard machinery of well known types, such as lathes, planers, turret lathes, shapers, drills, etc., but each of these machines has been adapted by means of special fixtures to do most economically the operation for which it is intended. In running the machines the same plan is followed as in handling the men, namely, a machine normally performs one op-

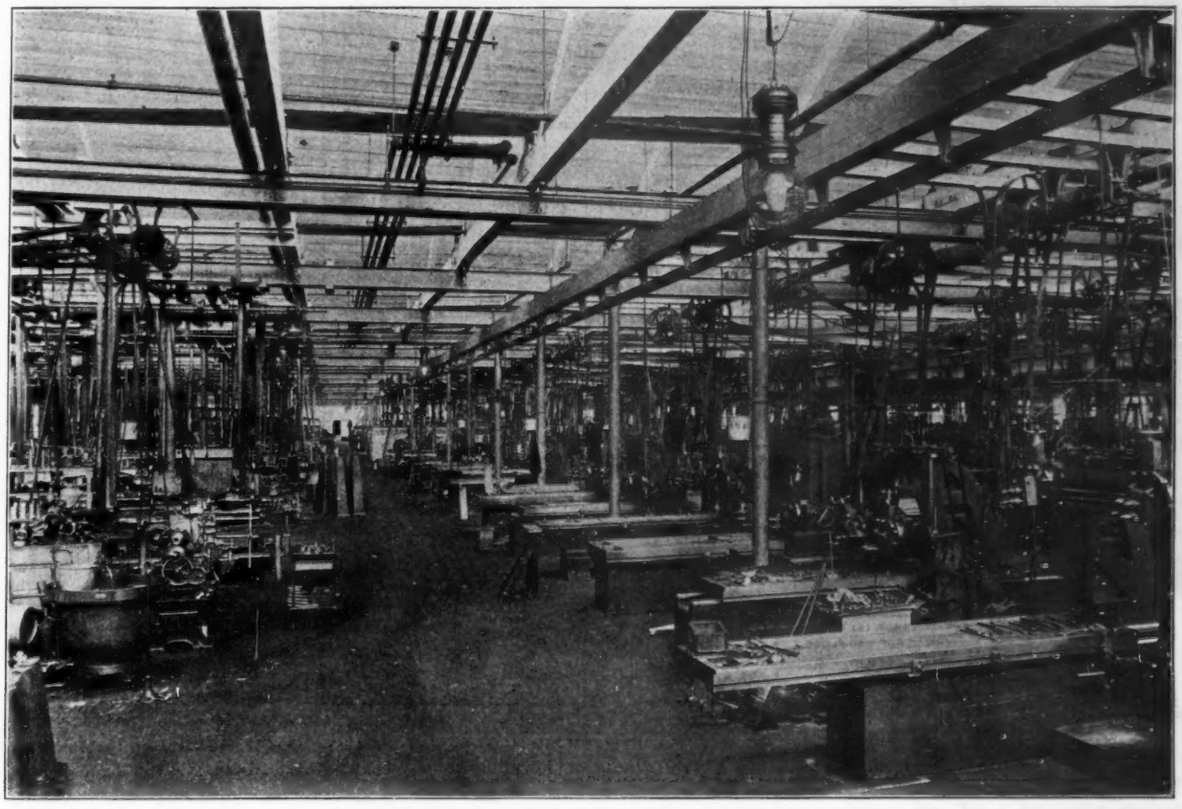


FIG. 1—PLANER DEPARTMENT, AMERICAN WOODWORKING MACHINERY CO.

eration and one only. A piece, therefore, in its course through the shop may have on it a half dozen different operations, each of which is performed in a different machine. The high output and low cost per piece is accomplished by avoiding any unnecessary changing of the machine, enabling it to be in operation the maximum possible number of hours per day, and by the operator of the machine becoming highly proficient in performing the one operation.

As an example of the above, the finishing of cylinders for the planing machines may be taken. These cylinders which carry the knives of the planers are cylinders in name only. They are usually a triangular or quadrangular prism with a round spindle on either end which rests in the bearings, and on which the driving pulley is carried. After being forged the rough piece goes to the machine shop and is placed in a certain lathe which turns the spindles to size and then faces the end. The piece then immediately goes to a planer which does nothing but plane up the sides of the prism. On this machine two prisms are mounted in V-blocks and the surfaces finished to the proper size and the proper grooves cut for the accommodation of the knives. This planer works on nothing else than these cylinders and performs no other operation than that noted above. The same is true of practically every other piece entering into the construction of the various machines throughout the shop.

Another feature which conduces to the economical operation of the output is the fact that the shop is so laid out that the path of the work through it is continually forward, there being practically no retrograde steps whatever in its passage from the raw material until it is placed on the shipping floor ready to be sent to the customer. A brief consideration of the arrangement of the shops will be interesting in this connection.

A ground plan of the works is shown in one of the accompanying illustrations. It will be noted that the plant is largely self-contained, having its own foundry, pattern and carpenter shop, blacksmith shop and machine shop. The various buildings are inter-connected by means of an industrial railroad reaching all of the principal departments and connecting with crane service in the various buildings. The foundry, a thoroughly fireproof building with concrete roof, is 111 x 195 feet in dimensions and is spanned by two five-ton cranes in the main bay and by a three-ton crane in one of the side bays for the handling of the lighter work. The building is provided with good interior light by means of inclined skylights in the roof of both center and side bays.

The melting equipment comprises two cupolas built by the Whiting Foundry Equipment Co., one 56 inches,

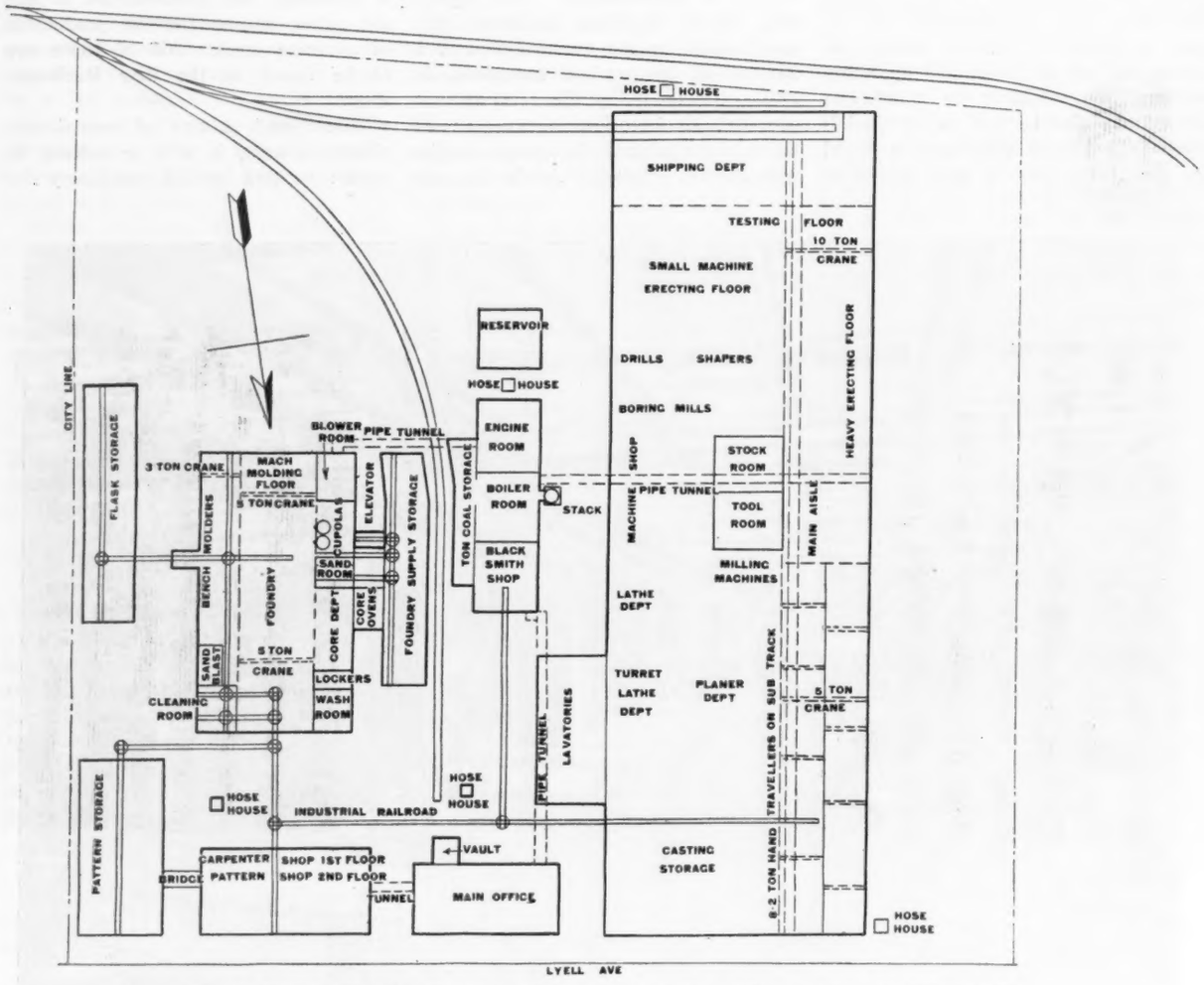


FIG. 2—GROUND PLAN OF ROCHESTER WORKS OF AMERICAN WOODWORKING MACHINERY CO.

the other 72 inches diameter, having a combined capacity of about 18 tons per hour. Blast for these is furnished by a No. 5½ Roots blower driven by a 30-horsepower motor. Most of the work is hand molding, but there is a Mitchell-Parks gravity molding machine installed, of the type described in THE IRON TRADE REVIEW of Jan. 17, 1907. Additional bolt cutters, punches, shears and grinders, and other necessary equipment for making any forgings required in the manufacture of wood working machinery.

The boiler room separates the blacksmith shop from the engine room. The boiler equipment comprises three Keeler boilers, each of 150 horsepower capacity. Feed water comprises a high bay 60 feet wide used for heavy erecting purposes, and a bay on one side of it covered by saw tooth roofs at right angles to the long dimensions of the building and used for the manufacturing processes. A portion, however, of this side bay is reserved for erecting the smaller machines. The interior lighting is excellent as is attested by the

FIG. 3—MAIN ERECTING AND TESTING FLOOR.

molding machine equipment comprises three Tabor machines and a Tabor pulley molder, together with another machine in the small molding department. Round cores are made by a motor driven core machine, and a core oven immediately adjoins the foundry, being located between it and the foundry supply storage adjoining. This latter is a building 25 x 150 feet, in which are stored sand, coke, pig iron and all materials needed in the foundry.

The power house, which contains in addition the blacksmith shop, is located between the foundry and the machine shop. The blacksmith shop, an interior view of which is shown in one of the accompanying illustrations, is well equipped with power machinery for forging, together with is supplied to these by a Cochrane heater and is delivered at a temperature of about 208 degrees. The engine room contains a Hamilton-Corliss engine 20 x 40 inches, direct-connected to a 200-kilowatt Crocker-Wheeler generator. There is in addition a Skinner high-speed engine direct-connected to a 100-kilowatt Crocker-Wheeler generator, which is used as a reserve unit, or when the power requirements of the plant are light. Space has been reserved for a duplicate unit of the larger size. The engine room also contains an underwriter fire pump of 1,000 gallons capacity per minute.

By far the most important building in the plant, as well as the largest, is the machine shop. This has at present dimensions of 184 x 572 feet. It accompanying illustrations, all of which were made without any artificial illumination whatever. The building is of slow burning mill construction and is further protected against fire by a complete installation of automatic sprinklers. Further protection is furnished by fire hydrants situated in hose houses at appropriate points in the yard and supplied by the underwriter fire pump above mentioned.

In planning the shop the various types of machines used were segregated, thus dividing the building into various departments, as the turret lathe department, planer department, lathe department, milling machine department, drill department, etc. These departments are usually located under one or more adjoining saw-tooth sec-

tions, as will be noted from the illustrations. The integral parts entering into the composition of the finished machine are all manufactured in large quantities and stored in the department to which they belong, ready for assembling and are used as required. The machines themselves are put through the shop in lots of varying numbers, depending on the character and size of machine. It is only by manufacturing in lots in this manner that the highly specialized system which has been developed can be followed out, as there must be enough pieces of a given kind always going through the shop to keep a man employed his full time on one operation.

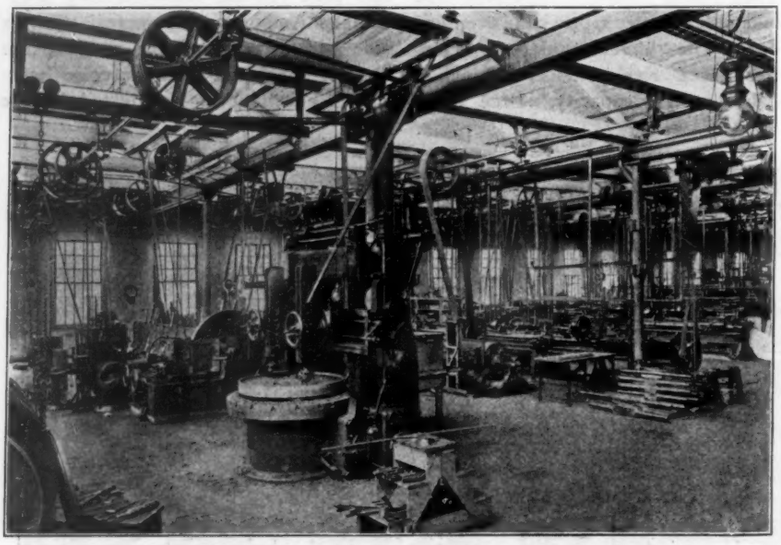


FIG. 4—A PORTION OF THE LATHE AND BORING DEPARTMENT.

Bar stock and other long articles are stored in racks, as shown in the illustration, Fig. 6, whence they can easily be obtained by the workmen as needed. These are placed convenient to the turret lathe department, as will be seen from the same illustration, inasmuch as the bar stock is principally for use in these machines. The turret lathes are all furnished with oil pumps to permit the use of oil drills. The lathe department immediately adjoins the turret lathes, and covers considerably more area than any other single department of the plant. Feed screws for the various machinery manufactured are made in the milling machine department, in standard milling machines fitted for thread milling. All work is cleaned in this department before being sent to the erecting floors, soda water tanks and oil filters being conveniently placed. It may not be out of place to mention here that each department is provided with the accessories necessary for use in that particular department. This results in a possible multiplication of equipment, but the time saved more than compensates for the extra expense.

Some special machinery is found in the plant, the most notable being a number of Davis & Thurber pulley lathes, a Colburn band saw wheel turning and facing lathe, and a grinding machine for grinding the face of the band wheels installed in the lathe department and unique machines for balancing pulleys and other fast running parts. The conditions under which wood working machinery operates in regard to speed conditions necessitates that the parts be accurately balanced or great vibration will ensue, with resulting damage to the machines. The machine installed in this plant for balancing comprises a double structural iron frame work in the form of a gallows, from which is suspended a pair of swinging arms terminating in a hook shaped piece in which are mounted two U-shaped bearings. A motor drives a countershaft on the top of the frame work and from a pulley on this countershaft depends a belt, which is placed on the pulley to be balanced. In operation the pulley is placed on an arbor, passed through the belt and dropped into the U-shaped bearings on the swinging rods. The motor running at 1,800 revolutions per minute drives the pulley to be balanced at about 6,000. The method of balancing is somewhat slow, but it is a considerable advance on the methods usually adopted for balancing fast running parts.

The erecting department for heavy machines comprises all of the shop under the monitor roof at one side of the saw-tooth sections, together with a number of departments in the latter. The same system of specialization is followed in erecting as in manufacture. The accompanying illustrations show a number of the erecting departments, Fig. 8 being that devoted to planers. It will be noted that a number of machines are being assembled at one time. In this work a single assembler performs but one operation, for instance, the mounting of the cylinder carrying the knives. He will do this on one machine and then pass to the next, and so on. A

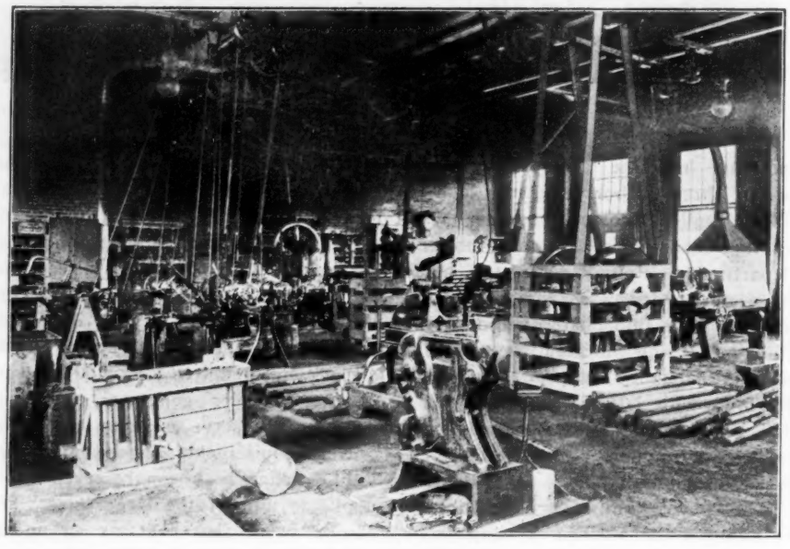


FIG. 5—INTERIOR OF FORGE SHOP.

second operator will follow him and perform some other job, and so on until the machine is completely assembled. It will be noted from the illustrations that each department extends transversely of the building and that on one side is a bench provided with vises, arbor-presses, etc., for the ready assembling of small parts, while on the opposite side of the department is a rack holding the component parts of the machines to be assembled. The assemblers thus have a minimum of carrying to do in putting the machines together.

The heavier machines are erected on the floor shown in Fig. 3. This portion of the shop is spanned by one ten and one five-ton Shaw electric cranes. In addition at one end, two pair of crane runways are laid down somewhat lower than the main runway, dividing the floor in halves. On each of these runways is located four one and two-ton hand cranes. This arrangement gives great flexibility in the internal transportation, inasmuch as the large electric cranes are called into service only for removing complete machines and the heavier parts of the larger machines. The comparatively light component parts of the machines are handled by the hand cranes on the lower runways.

It may be here proper to speak of the internal transportation system of

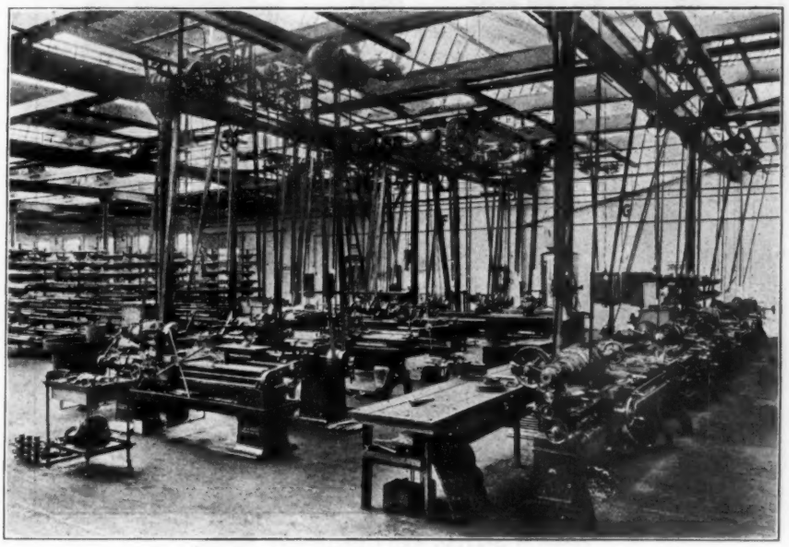


FIG. 6—TURRET LATHE DEPARTMENT, SHOWING RACKS FOR STORAGE OF BAR STOCK.

the rest of the shop. By referring to the illustrations, Figs. 2, 4 and 8, it will be noted that each erecting and each machine department is provided with hoists mounted on trolleys running transversely of the shop. These extend completely across the building and project into the space covered by the traveling cranes on the erecting floor. As the single pieces entering into the composition of wood working machinery are not usually very heavy, these hoists are of ample capacity for the service required. In connection with the industrial railroad, and the traveling cranes, they furnish complete access to every portion of the plant.

All machines when finished are tested on a testing floor, immediately adjoining the shipping department. They are put through the actual operations of cutting wood, as they will be expected to do when installed in the purchasers' shops.

Brief mention may be made of the other departments comprised in this extensive plant. Extending along Lyell avenue are three two-story brick buildings, the main office 50 x 104 feet, the carpenter and pattern shop 60 x 120 feet, and the pattern storage

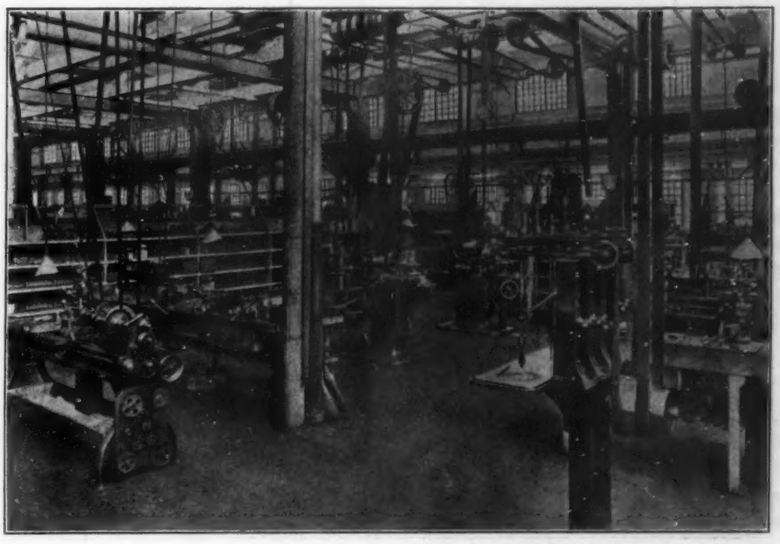


FIG. 7—INTERIOR OF TOOL ROOM.

also 60 x 120 feet. These are all interconnected by bridges or tunnels. The main office contains on the first floor the general business offices, engineering department and drafting rooms, and on the second floor the private offices of the executive officials of the company. In the basement is an emergency hospital. The carpenter shop is used for the repair and manufacture of flasks, boxes and crates, and is located on the first floor of the building above mentioned. The pattern shop on the second floor is provided with a complete equipment of lathes, planers, surfacers, drills, trimmers, etc., for the making of all patterns needed in the plant.

The pattern storage is of brick and slow-burning construction and is protected throughout by automatic sprinklers. The patterns are carried on shelves supported on iron columns made of heavy piping, attached to which are cast iron brackets for supporting the shelves. A flask storage 32 x 160 feet adjoins the foundry, being located alongside the property line.

Provision for extension has been made in the design of all the buildings, the foundry having ample space to the south for extension, while the machine shop can be almost doubled in size by the erection of another saw-tooth section on the opposite side of the erecting bay from those already installed. The plant has ship-

ping facilities from the New York Central railroad, three spur tracks entering the yard.

The officers of the American Wood Working Machinery Co. are: J. E. McKelvey, president; Gen. Hiram Duryea, vice president; A. N. Arms, secretary and treasurer; and F. H. Clement, chief of construction.

FIG. 8—ONE OF THE SMALL MACHINE ERECTING DEPARTMENTS.

WORCESTER NEWS NOTES.

Machinery Outlook is Becoming Brighter in New England.

Worcester, Mass., Sept. 4.—The outlook in the machinery line is getting brighter. The Norton Grinding Co. reports a good month of August.

The directors of the Bridgeport Forge Co., Bridgeport, Ct., have voted to lease the plant, with privilege of sale, to the Titusville Forge Co., Titusville, Pa.

The Boston & Albany R. R. Co. shops in Merrick, Mass., were placed on full time Sept. 1, and about 40 new men put on, which brings the pay roll up to its full quota. The shop men are now working full 54 hours per week.

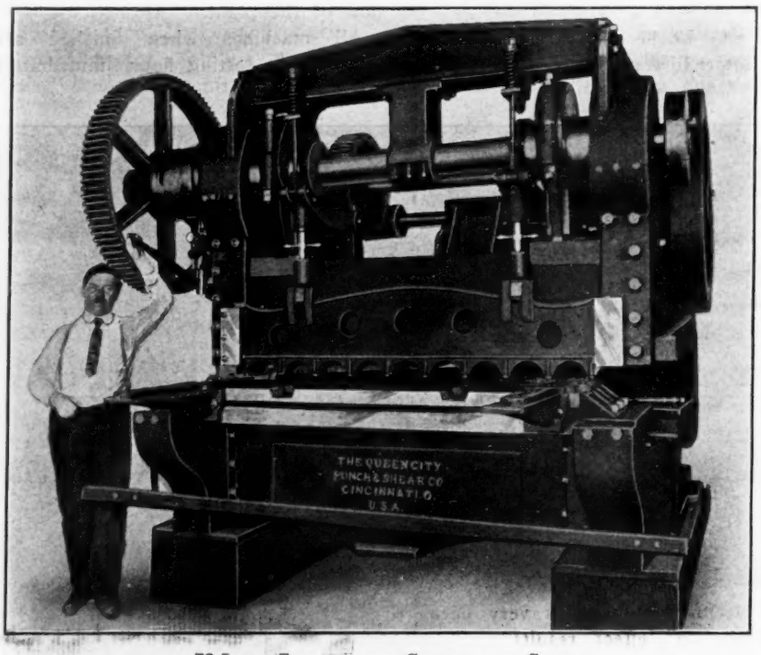
F. E. Reed, who was badly injured in an automobile accident some weeks ago, is slowly improving. He is president and treasurer of F. E. Reed Co., manufacturer of machine tools. The shop has been running on reduced hours and help.

The Matthews Mfg. Co., manufacturer of stove trimmings, urns, etc., reports an improved outlook.

South Works stack No. 2 of the Illinois Steel Co. blew in Aug. 21.

A LARGE SLITTING AND CUTTING-OFF SHEAR.

The accompanying illustration shows a 74-inch gap, slitting and cutting-off shear just completed by the Queen City Punch & Shear Co., Cincinnati, for the Cincinnati Iron & Steel Co. The machine illustrated has a capacity for steel plates 72 inches wide, 5/8-inch thick and of any length, for cutting or slitting. The machine is motor-driven by means of a direct-connected 20-horsepower motor and makes 16 strokes per minute. It weighs complete about 42,000 pounds.



72-INCH SETTING AND CUTTING-OFF SHEAR.

The construction is simple, and great care has been taken in the design of the machine to have it symmetrical and perfectly balanced. The shear beam is so balanced that there is no unequal wear on the two eccentrics driving the knife either on the upward or downward stroke. An automatic clamp is provided for holding the plate to the bed while cutting, the clamp being raised by two springs, which permit of quick action. This clamp is operated by two cams on the driving shaft, which operate levers in the front of the machine, as shown, to depress the clamp. These are provided with plate springs under the cams, which remove all danger from the use of plates of varying thicknesses. They also prevent the cam from being broken in case the operator should neglect to adjust the clamp for different sizes of plates.

The eccentrics driving the knife are large and have broad bearings. The machine is driven through an automatic jaw clutch, which is easily operated either by the foot treadle at the front of the machine, or the hand lever at the side. The knife stops at the highest point of the upward stroke, so that the shear is always open to receive a plate. The machine is equipped throughout with cut gears, the main pinion being of hammered steel.

The Adrian Furnace Co.'s stack at Du Bois, Pa., blew out for repairs Aug. 29.

THE PRODUCTION OF MALLEABLE CASTINGS—VII

Molding Methods and Core Shop Practice of the Malleable Plant—The Cupola Melting Process

By Richard Moldenke

Molding for the production of malleable castings differs but little from the ordinary proceeding for gray cast iron. The molder trained in the latter line of work, has practically only to learn how to pour a mold for "malleable" properly, and ordinarily acquires the art in a few days. The points to be specially considered are based upon the differences in the behavior of white iron when compared with the gray varieties. White iron melts at a temperature several hundred degrees Fahr. lower than gray iron, and even if considerably overheated in the air or open-hearth furnace, not to speak of the cupola, is still at a lower temperature when at a scintillating white heat, than gray iron at a bright red. White iron, owing to the comparatively low silicon and manganese content, is very sensitive to burning when greatly overheated, as may be seen continually in any malleable shop. The brown smoke as well as the flaming effect on the surface of the ladle as it is filled at the furnace and taken away will convince any founder of this.

Burnt white iron is peculiarly sluggish when the temperature is lowered ever so little, as for instance in tapping into the ladle. Sluggish iron will not fill the mold as quickly as desired, if at all, and hence the molder must not only make his gates fairly large, but must practically throw the iron into the mold. Here are two variations at once from gray iron practice. On the other hand from the fact that white iron is at a lower temperature, when melted, than the gray comes the practice of using very little facing in a malleable shop. For very heavy work, where a smooth surface is especially desired, a very little facing is beneficial, but if too much is used, a very peculiar "grape-vine" effect results.

Molding.

Most of the ordinary work is made in the snap flask, generally on the bench, occasionally on low horses, and the larger, though not necessarily heavier work, in regular flasks on the floor. Fig. 1 shows the method of setting up a mold for pouring. The molds were made on the bench, simply set down on the floor with their bottom board. If safe to pour without a shell, they are only weighted, and then poured. A better practice is to insert iron bands in the snap flask when molding. This avoids the use of a shell before weighting and pouring, and leaves the mold undisturbed.

Long work, such as brake beam rods, or a casting as shown in Fig. 2, is preferably made in the snap flask, placed on low wooden horses. This takes more time than molding on the floor. Every shop naturally has its own methods and preferences,

Fig. 1—Pouring Malleable Iron Into Molds

but the cost of molding in a shop making railroad work can be brought down to surprisingly low figures, while paying good wages. For instance, with average work, and pieces not too intricate, $5 a ton is not uncommon, and in exceptional cases this figure can be shaded somewhat.

When it comes to making large rings for heavy pressure gas pipe or railroad couplers, floor work is the order of the day, and it is important to arrange the daily heats so that several pourings, at uniform intervals, keep the floors within reasonable limits of size.

Sand for the Malleable Shop.

The sand is tempered as usual in the gray iron foundry. Preferably the night gang shakes out the last of the work remaining in the sand, and cuts up the sand heaps, the new sand having previously been brought in. When the molders come in the morning they can begin to mold at once, and a goodly array of molds should await the pouring of the first heat.

The quality of the sand varies with the lightness of the work. Too little attention, as a rule, is given to this subject, and hence some very rough castings must depend upon a sort of scaling off process in the anneal to make them presentable. Fig. 2 shows a skeleton core plate or grate on which cores are set on trays, Fig. 3, to be dried, and are set upon shelves in the core cars. A large 70-pound relief valve body for tank cars is shown in Fig. 4. It incidentally shows the gating at two points. Chills are used on the heavy parts of this casting.

Flasks.

While the bulk of malleable castings are made in the snap flask, on account of their small size, all the larger class of castings, such as couplers, rings, and many car castings, are made in the ordinary flask. Where a foundry is supplied with steady orders for the same castings, it pays to make the flasks of malleable cast iron. Special side and end pieces are cast, duly bolted together and bored for the customary flask pins. The castings are fairly thin, but well flanged for resistance to bending, and are filled with perforations for lightness and venting purposes. Where the works have a specialty, these flasks may approach the

contour of the castings in question, so that a minimum amount of sand only need be handled. These iron parts are made in stock as occasion offers, and are put together when wanted.

Other castings that are made in stock in a malleable foundry are the core plates, Fig. 3, as well as the stars for the hard rolling barrel. These castings, both core plates and stars, however, are not annealed but remain white and hard. Core boxes, which are always the best of iron, are made gray, as they usually require machining. The chills required are made of the regular malleable mixture, and left hard. They are provided with nails, if they are to be held in the cope, and are duly oiled before use.

Use of the Molding Machine.

If there is any place where a molding machine is useful, it is the malleable shop. The work being all practically in quantity, it remains only to select the right machine for the particular class of castings in hand. The squeezer was one of the first machines introduced, but prejudice on the part of the men, and indifference on the part of the foremen to the saving possible with these machines, prevented the management from realizing handsome profits. The pendulum has, however, swung the other way and molding machines of the most advanced types are being installed in all modern plants.

The time was not so long ago when molding machines were tried, discarded and sent through the cupola. Since then it has been realized that castings may be divided into classes, some, but not all of which are best handled by a particular make of machine. Hence foundry owners can do no better than attend the great exhibitions of molding machines at the foundrymen's conventions, and there see just what machines will do their work most advantageously. Apart from the increase in production, the castings are better, run evenly in weight, which in most cases means a saving in iron, and relieve the man of much of his hard work.

Sand Handling Equipment.

Wherever molding machines are introduced, there is usually required a complement of sand handling machinery. In fact one of the weaknesses of present foundry practice is the introduction of great molding capacity by machines, without supplying the facilities for handling sand, etc., in like proportion. As the requirements of the situation become better understood, this will be remedied, and it is important that with the introduction of sand handling machinery, the question of sand preparation be not forgotten. Attention need only be called here to the desirability of applying methods which rub the clay portion of a molding sand intimately against the silicious part. This allows the use of the least amount of clay matter in a sand and hence keeps it very open while holding the bond. Where such a system is adopted, the ordinary molding sands may be mixed with much sharp sand, and a corresponding benefit in venting derived, while it is still strong enough to hold up properly in the mold and when pouring the iron.

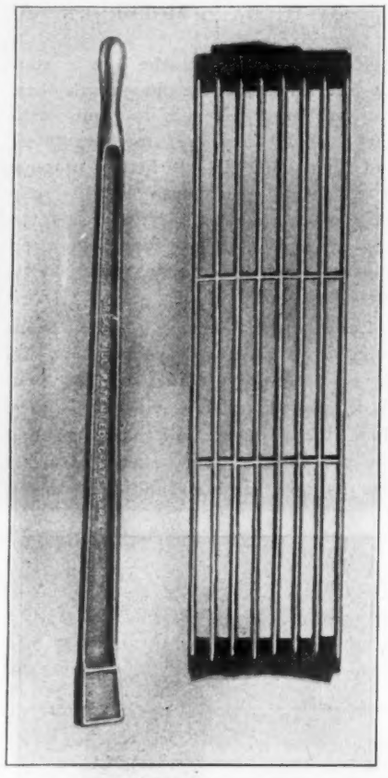


FIG. 2—LARGE MALLEABLE IRON HANDLE BAR AND CORE GRATE

It will be seen from the above that the differences between gray and malleable practice, so far as the molding is concerned, are slight, and hence it requires no further discussion at this time.

Permanent Molds.

Unless the principles underlying the use of the iron mold are well understood and the mold itself properly built and used accordingly, the subject will remain an *ignis fatuus* in the foundry business. As in the case of the molding machine, the malleable shop offers the best chance for the iron mold, for the characteristics of white iron, with its subsequent annealing, are such that the strains found in gray iron cast in this manner are fully eliminated. As attention is now being directed to this subject again, the tests made by the writer may be of value. He has always believed that there was a great field for the sandless mold in the malleable shop, and at one time was instrumental in having the matter tried out with a very large casting. Some 800 or more of the casting in question were made from time to time in the same mold, and after anneal went duly into service. Then the natural opposition to this method of preparing castings caused the mold to be discarded, otherwise a more complete record of the life of the mold might have been established. Tests on the product showed a slight decrease in the strength of the metal, probably due to a more distinct setting of the crystals of iron at right angles to the metal mold, instead of having an indeterminate mixture of the crystals which is better adapted to secure all around strength in a casting. The castings themselves weighed some 275 pounds each, and the preparation and continual use of 50 of these molds would have allowed 250 men in the shop to apply themselves to other more useful vocations.

The iron mold as compared with the sand mold has two objections which must be overcome. First, the excessive contraction of white iron, especially when cooled more rapidly than in sand, must be provided for; and second, the cooling of the metal should be made to take place as nearly the same in the metal mold as in the sand. If these two points are observed success is assured, and only then.

In the early experiments with iron molds, very easily crushed cores were placed where the contraction of the metal could be given full play. These particular spots were found by observing the castings poured into the mold without this precaution. The metal was found torn apart at these points, and the judicious use of cores remedied this trouble without difficulty. Another and better method, being used now, is to construct the mold so that the contraction of the iron opens the parts automatically. By making the molds in a num-

ber of parts to suit the requirements of the case, this spoiling or injuring the casting is avoided.

Heating the Molds.

The other point is to heat up the mold to a point that the cooling of the molten metal is effected as slowly as possible, thus closely approaching the sand mold.

In the experiment above cited, this was done by pouring metal into the mold, allowing it to remain long enough to heat up well, dumping the casting for scrap, and then going on with the regular work. The castings are taken out of such metal molds as

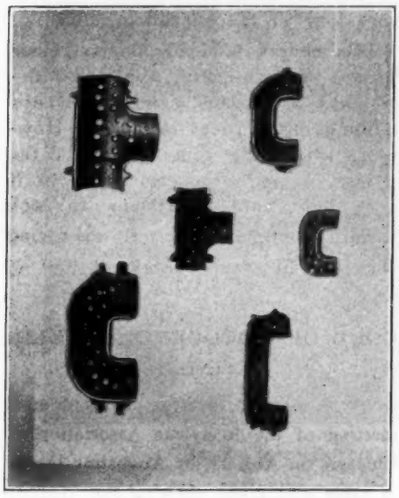


FIG. 3—TRAYS ON WHICH CORES FOR FITTINGS ARE BAKED

soon as set, and placed into soaking pits where they can cool very slowly, be inspected and go directly into the anneal, the hard rolling being saved. The molds are filled as often as it can safely be done without burning the pouring basins. It is possible to place the necessary cores into the molds, which should also be coated with a wash of graphite and soapstone in a heavy paraffine oil.

Cores.

The preparation of cores offers nothing different from gray iron practice. The same mixtures and methods are employed. In the evolution of the business the customary mixtures of sharp and bank or molding sands with flour and rosin as binders are gradually giving way to the prepared binders thoroughly mixed in with the sand by machines especially built for that purpose. This last point is important, inasmuch as by mixing by hand, a core binder may give satisfaction when used 1 to 40 of sand, while with mechanical mixing, especially when plenty of time is given to the work, 1 to 90 has given fair results. It is simply the old principle of rubbing the binder on the grains of sand uniformly and in a thin layer so that a good bond with good venting may result.

In the malleable shop, practically everything is cored, and hence the core room is one of the most important adjuncts, also one of the most expensive. As a rule the shop orders call for 10 per cent over the castings required, though with a close connection between molding room and core department the making of too much stock can be avoided. Plenty of shelving is necessary to store cores, and facilities for bringing in sand, taking out cores, and straightening out the rods used should be arranged for. Even the repeated use of the larger wire nails, by hand straightening, by some old pensioner acting as a minor gate watchman about the works saves just so much money.

Where the cores are very large, in fact form part of the mold itself, the unburnt portions should be reground and used over again. The best of core ovens are only just good enough, for what is desired in coke baking is first a temperature sufficient to drive out the water when drying, and then an increase up to about 350 degrees Fahr. for the actual baking. In the days of flour and rosin, great care had to be taken with the ovens because of overheating and frequently insufficient time was given to the baking. The result would be burnt cores or they would be wet inside. The construction of the ovens, usually built on the place, would frequently prevent the exit of the moisture freely, and on opening up a large oven in the morning a pool of water would be found on the floor. This always meant returning a lot of the cores for baking over again. Unfortunately, in every core room where flour is used to any extent, a close watch has to be kept on supplies smuggled in surreptitiously. The men or girls, as the case may be, will reach under the bench for additional flour to mix quickly with the sand given them and thus get out their day's allotment with the least trouble to themselves. Swollen cores, and life a burden in the casting shop, result.

Many other binders have been tried and are being used for making cores. The writer remembers having used a great many cores made with cement, 1 to 10 of sand. The results were most excellent. The cores had to be handled more carefully while being made, but required no baking, being allowed to set like concrete, as they were made fairly dry in the first place, and would keep indefinitely. The only objection was that the cement hurt the hands of the operatives.

Core making machines are very much needed in the foundry. A beginning has been made in this direction, though confined more particularly to the easier classes of work.

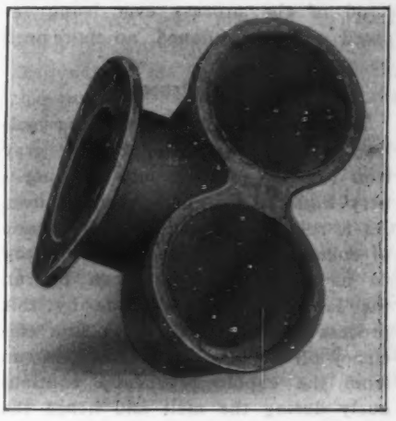


FIG. 4—LARGE MALLEABLE IRON RELIEF VALVE BODY

What is wanted badly is a variety of molding machines for core making both in green sand and the ordinary way.

Melting Processes.

Iron for malleable cast iron purposes is at present melted in the crucible, the cupola, the small Bessemer converter, the air furnace, and the open-hearth furnace. The pros and cons of each method will be discussed at length.

The crucible method, the most ancient, undoubtedly gives the finest material. It is also the most costly, and hence may only be found at the present day in parts of Europe, where a production of 500 tons a month is considered very large. The superiority of the material obtained by this process is due to the melting conditions, which are ideal. There is no contact with and hence contamination from the fuel. The charges placed into the crucible are taken out in the melted form without refining or any other change than uniform mixing. Hence, if sufficient steel is added to reduce the total carbon to, say 2.75

to 3.00 per cent, a very strong and clean product results.

The high cost of the process unfortunately puts it out of question in this country, for with care in the air furnace and open-hearth an equally good and cheaper product is produced. However, we have in the crucible process the ideal condition of putting into the charge what we expect to get out without refining, but simply heating up to the desired temperature for pouring. Naturally, the small amount of metal melted at a time has limited this process to the production of the smallest classes of work only, and as there is no likelihood of the process ever being revived where abandoned, no more need be said.

Cupola Process.

The cupola process for making malleable differs from the ordinary gray iron foundry practice only in using a very high proportion of fuel to iron. As a rule it is four of metal to one of coke or anthracite. It is necessary to have extremely hot iron to run the fairly light work made by this process and hence the very low efficiency of the fuel. The stream is run from the cupola practically continuously during the melt and hence the tuyeres are set very low, so that the metal may not be unduly cooled in passing through a bed of fuel at a lower temperature than the melting zone. Where anthracite is used in part, it is best placed for the bed charge, and coke thereafter, above. The charges of metal and sprues are made as small as possible, and with the very smallest range of variation in composition, so that the metal tapped out may be quite uniform. By having small charges, the position of the melting zone is not interfered with to an appreciable extent, and hence the metal is not apt to get below the proper point, which would mean burning.

The advantages of the process are the cheapness of the installation and operating expense, the ease with which it can be carried out, when compared with the air or open-hearth processes, the comparatively small melting loss, as only 0.25 per cent silicon is burned out, and carbon from the fuel, if anything, added; the ability to drop bottom in case of necessity, and the ease with which the metal is secured and distributed as fast as melted.

Disadvantages of the Cupola Process.

The disadvantages are very marked. The chief difficulty arises from the contact of the metal with the fuel, making it peculiarly liable to burning, which means sluggish iron, castings full of pin holes, and trouble in the anneal. Again, even with perfect conditions during the melting, the metal made in the cupola is of such a physical constitution that it requires an annealing temperature several hundred degrees higher to properly anneal it, over that for air or open-hearth furnace iron.

For this reason, and the fact that the metal made from the cupola is somewhat weaker, it is only used for those castings which are light and require strength less than the property to bend readily. Pipe fittings are the best example of this class; in fact, these castings form the bulk of the work made from cupola iron.

But little malleable that is, annealed scrap, can be used in the mixtures, as the danger of burning is so great, and steel is likewise seldom added for the same reason. The silicon of the castings usually runs between 0.75 and 1.25 per cent, probably averaging 1.00 per cent in most works using the cupola. Hence in the mixture calculations, 0.25 per cent is added for burning out. The pig iron is used in fairly small pieces, and this with the sprues is charged in very small amounts at a time, with the corresponding coke between. The blast pressure is preferably kept low, say not over 7 or 8 ounces, and the cupola filled up to take advantage of all the preheating of the charges possible.

Every malleable works has a cupola intended for melting iron for pots. The very fact that cupola iron requires over 200 degrees more than the air furnace castings to be packed in these pots to anneal them, makes this class of iron well adapted for the purpose. While convenient to use the left over metal from the furnace for pot purposes, as it has the proper composition, this should not be made a custom. In pot making, as in regular malleable work in the cupola, care should be taken to have the charges small so that no burning may take place. A pot made of burnt iron, while a good way to get rid of that kind of metal, will not last very long in the annealing room.

The modern tendency is toward air furnace or open-hearth iron, and rather away from cupola metal. Hence nothing further need be added. However, where the cupola is used, the wisest course to pursue is to run it very light and if anything to look toward continuous melting as giving the best all around results.

COST OF AUTOGENOUS WELDING.

In a paper presented at the annual meeting of the Acetylene Association at Chicago, on Aug. 11, by Augustine Davis, a table was given showing the approximate cost of oxy-acetylene welding, and the cost of cutting steel by this process. The tables, as presented, follow:

APPROXIMATE COST OF OXY-ACETYLENE WELDING.

Oxygen at three cents—Acetylene at one cent per cubic foot. Labor 30 cents per hour.

Tip number.	Thickness of metal, inch.	Consumption of acetylene, per hour, cu. ft.	Consumption of oxygen per hour, cu.ft.	Proper pressure in pounds for oxygen, lbs. per sq. in.	Lineal feet welded per hour.	Cost of labor per hour, cents.	Total cost per hour, dollars.	Cost per lineal foot, dollars.
1	1/32 to 1/16	2.8	3.6	8 to 10	50	30	0.436	0.0087
2	1/16 to 1/8	4.5	5.7	10 to 12	30	30	0.516	0.0172
3	1/8 to 1/6	7.5	9.7	12 to 14	25	30	0.666	0.0266
4	1/6 to 1/4	11.7	15.0	14 to 18	16	30	0.867	0.0540
5	1/4 to 1/8	18.0	23.0	18 to 22	10	30	1.117	0.1170
6	1/8 to 1/2	25.0	32.0	20 to 25	7	30	1.510	0.2160
7	1/2 to 1/2	32.5	41.5	22 to 27	5	30	1.870	0.3740
8	1/2 upward	48.5	62.0	24 to 30	..	..	2.640	.....

APPROXIMATE COST OF CUTTING STEEL.

No. cutting tip.	Use welding tip No.	Thickness of steel, inches.	Heating jet, cu. ft. of acetylene.	Heating jet, cu. ft. of oxygen.	Cutting jet, cu. ft. of oxygen.	Pressure of oxygen heating jet, lb. per sq. in.	Pressure of oxygen cutting jet, lb. per sq. in.	Lineal feet cut per hour.	Labor per hour, dollars.	Total cost per hour, dollars.	Cost per lineal foot, dollars.
1	4	up to 1/2	12	15 1/2	60	14 to 18	125	60	0.30	2.68	0.0447
2	4	1/2 to 1 1/2	12	15 1/2	75	14 to 18	125 to 150	50	0.30	3.13	0.0627
3	5	1 1/2 up	18	23	75	18 to 22	150 to 175	40	0.30	4.02	0.1005

A FURNACE PLANT WITH A HISTORY

Pig Iron Has Been Made at Dunbar Continuously Since 1791

The accompanying illustrations show a blast furnace plant of unusual interest, inasmuch as, with the exception of a few months' interval for relining, it has made pig iron continuously since 1791. The illustrations show the plant of the Dunbar Furnace Co. at Dunbar, Pa., together with some allied industries, comprising a sand plant and a Semet-Solvay by-product coke oven plant. Another industry located in this neighborhood is the continuous Glass Press Co., in which the Dunbar Furnace Co. is also interested. The fuel for this latter industry is furnished from the surplus gas from the Semet-Solvay ovens, and the sand for the glass from the sand mill located immediately adjacent to it, as are the ovens.

FIG. 1—DUNBAR FURNACE CO.'S BLAST FURNACES.

The Dunbar plant was projected by Col. Isaac Meason, and in 1791, the manufacture of iron was commenced. The first furnace was called the Union furnace, and its site was about 300 yards from the site of the present modern stacks. The furnace was doubtless a small stone stack, and it is stated to have been the first one whose building was started west of the Alleghenies and the second one to be finished and making iron. The important fact, however, is that pig iron has been made at this point almost continuously since 1791. In 1793, Col. Meason and Moses Dillon enlarged the furnace somewhat and established a forge nearby and another one at the mouth of Dunbar Creek. The records also show that in 1816 the second oldest rolling mill west of the Alleghenies was built on Dunbar Creek. At that time iron made was hauled across the country to the Monongahela river and loaded in flat boats.

In 1844, a firm by the name of Jones & Miller was owner of Union furnace. At that time, D. Creigh got it and changed the name of the furnace from Union to Dunbar. The capacity of the stack at this time was two tons of pig iron per day and the working force was eight men. The first steam engine on the first hot blast stove used in conjunction with the furnace was installed in 1852, when the works passed into the possession of Watt & Larmer. Prior to this time, Dunbar Creek furnished the motive power.

Up to 1854, the furnace used charcoal, but in that year Messrs. Baldwin & Cheny acquired control and introduced coke as fuel. The capacity was increased to about 10 tons daily. The furnace was enlarged at different times until 1865, when the Youghiougheny Coal & Iron Co. changed its location to the present site and built a stone stack, with a capacity of about 17 tons daily.

In 1866, the Dunbar Iron Co. became proprietor, rebuilt the stack and made a number of improvements around the plant. In 1876 the present Dunbar Furnace Co. acquired control and has made numerous additional improvements from that date to the present time. One of the present stacks, which is a modern skip hoist furnace 80 feet high, was built and

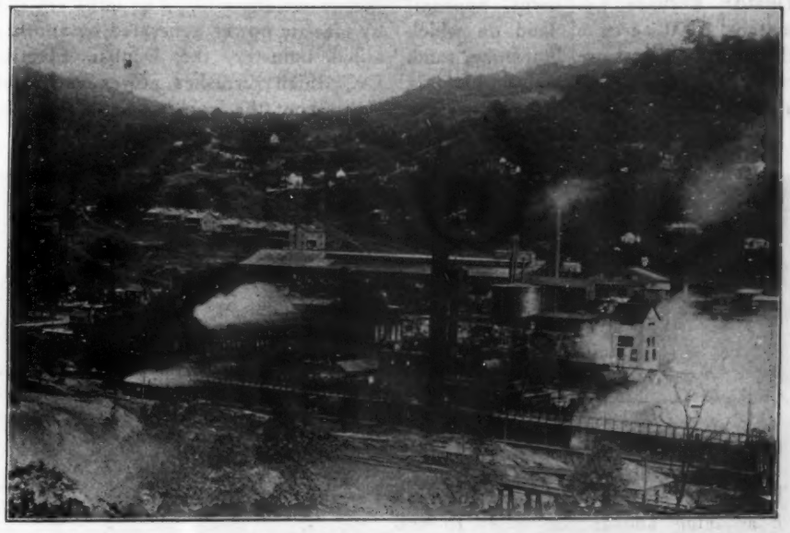


FIG. 2—BY-PRODUCT COKE OVEN PLANT AT DUNBAR FURNACE.

blown in in 1906. The other stack, also a modern 80-foot furnace, was built in 1900.

The illustration, Fig. 2, shows the Semet-Solvay by-product coke ovens, 110 in number, the coal washer, by-product house, tar and ammonia tanks. These are located directly in the rear of the furnaces, and in the foreground on the hill is the plant of the Continuous Glass Press Co. The first block of 50 ovens was put in operation in 1896. This was the first by-product plant in the United States where the coke was made and charged into a blast furnace adjoining it. Sixty ovens additional were put in operation in 1904. In addition to the by-product plant, there are about 225 bee-hive ovens, which, however, are idle, the by-product coke being preferred. The furnace works well with this coke, the average coke used being 2,000 to 2,100 pounds per ton of pig iron, and sometimes it has run as low as 1,950 pounds to the ton for a week.

The coal from which the coke is made comes from two mines controlled by the Dunbar Furnace Co., situated on each side of the coke ovens. These are shown in the illustration, Figs. 4 and 5. No. 1 mine is situated on the south side of the valley just across the creek from the by-product ovens and the No. 2 mine is situated on the opposite side of the valley north of the ovens. Mining has just begun at No. 2 mine, but 1,000 tons of coal are being daily taken from No. 1. This coal is used at all the plants, but chiefly, of course, in the ovens. The Dunbar Furnace Co. owns, approximately, 8,000 acres of land on which there is coal, iron ore, limestone, sand, rock, clay, blue stone and timber. It also has 159 tenement houses near the furnace. The water supply from Dunbar Creek is ample for the furnace, ovens, mines and the glass works. A few miles up this creek in the mountains, there are four large storage reservoirs and the sand mill is provided with a reservoir water supply from Irishtown Run, another creek in the mountains.

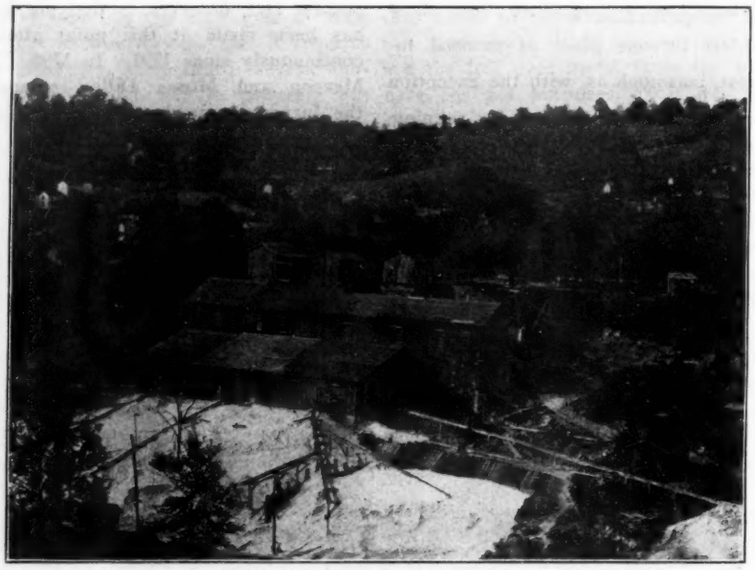


FIG. 3—DUNBAR FURNACE CO.'S SILICA SAND MILL.

The sand plant is stated to be about the largest of its kind in the country, and has a capacity of 700 tons of high grade silica sand daily. This is made from crushed, screened and washed silica rock quarried from a deposit just above the mill. The mills are run by electric power generated by another allied industry, the Dunbar Electric Co., which furnishes power and light throughout the works; and in the subway where the ore is handled. The town of Dunbar is also lighted by this company. The total number of hands employed in the various industries averages around 700. The general managers and exclusive agents of the Dunbar Furnace Co. are L. & R. Wister & Co., of Philadelphia. The main office is also in Philadelphia.

The St. Louis Blast Furnace Co. recently began the development of a new iron ore discovery five miles south of St. James, Mo. The body of ore has been proved to be large and rich, and a spur from the Salem branch of the Frisco railroad will be extended from DeCamp to the new ore bank.

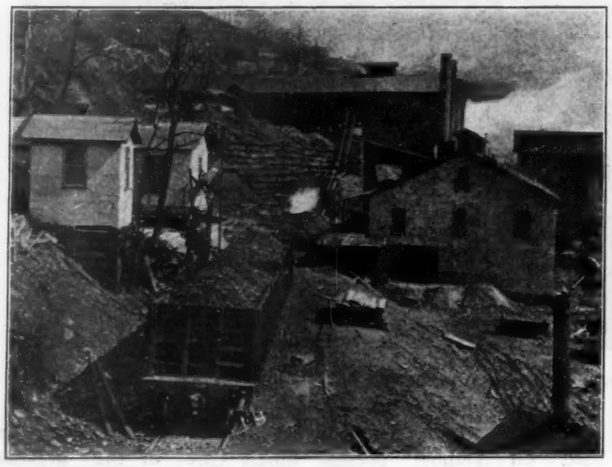


FIG. 4—NO. 1 COAL MINE OF DUNBAR FURNACE CO.

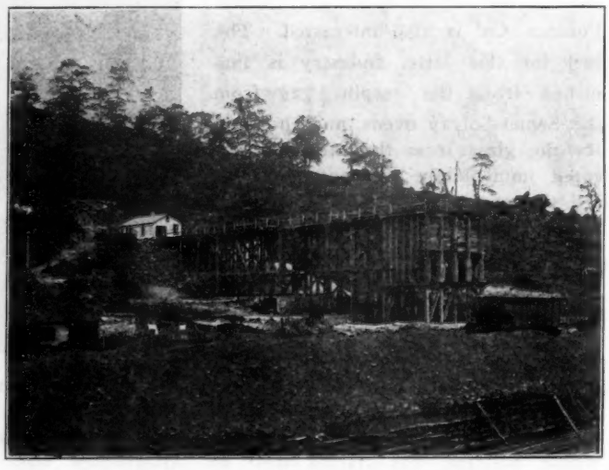


FIG. 5—NO. 2 COAL MINE OF DUNBAR FURNACE CO.

A NEW VERTICAL DUPLEX COMPOUND ENGINE.

The accompanying illustrations show the Williams vertical duplex compound engine, which has been designed to render economical service at high rotative speeds, in connection with direct-driven electric generators, centrifugal pumps, blowers, fans, etc. These engines are built in all sizes up to 500 horsepower in single units, and up to 1,000 horsepower in double units.

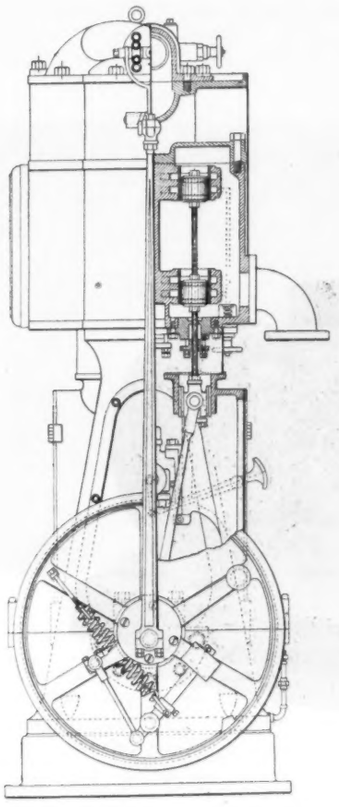


FIG. 1—END ELEVATION AND HALF SECTION.

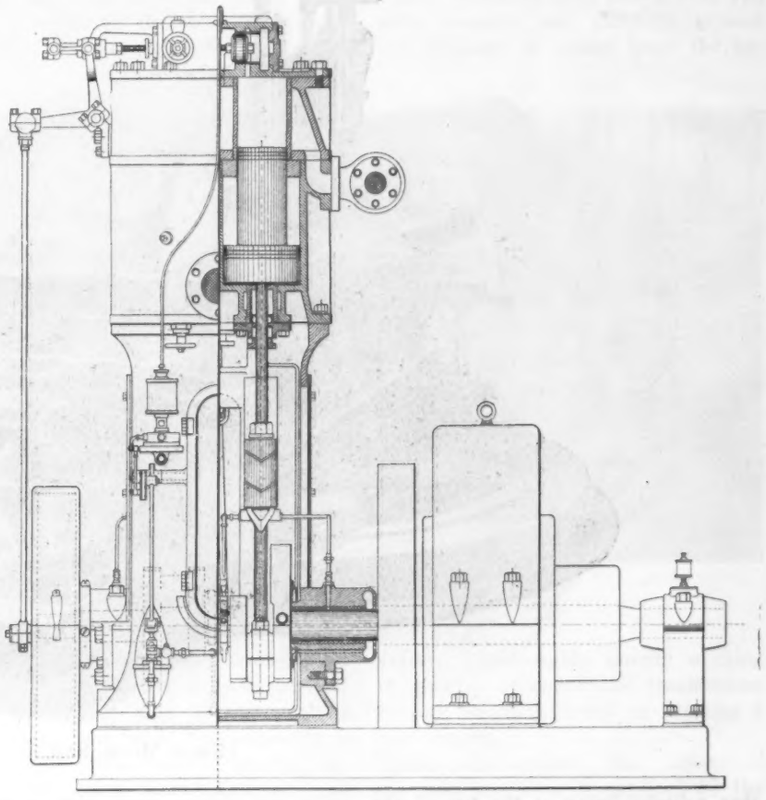


FIG. 2—FRONT ELEVATION AND HALF SECTION, WILLIAMS VERTICAL DUPLEX COMPOUND ENGINE.

Figs. 1 and 2 are a half end elevation and section and a half front section and elevation, respectively. The engine shown has two sets of moving parts, which act in opposite directions. The engines are built for service both condensing and non-condensing, and the cylinder ratios vary from three to five to meet the varying conditions of initial and exhaust pressures at which it may be desirable to operate. The consumption of steam per horsepower-hour, it is stated by the maker, does not exceed that of the best types of low and medium speed engines of equal or greater powers under similar working conditions.

The high pressure cylinders of these engines are steam jacketed, the jacket forming a separator. An intermediate separating and reheating receiver is also provided. The cylinder clearances are small and there is thorough protection from external and internal conduction and radiation. The ports and steam passages are of generous proportions and the valve system gives an economical distribution of the steam pressure in all cylinders.

The path of the steam through the engine is shown best in Fig. 1. The exhaust from the high pressure cylinders passes through the pipes shown over the tops of cylinders and into the receiver; thence it flows into the low pressure cylinders through steam valves similar to the exhaust valve shown in section and placed directly opposite and driven by an independent eccentric. The low pressure cylinders are double-acting, one steam valve and one exhaust valve serving both. It will be evident that the upper side of the low pressure pistons are of less area than the under sides. When the cylinder ratio is 4, for example, the respective area of the under and upper sides of the low pressure pistons are as 1 : 0.61, approximately. This feature is stated to be advantageous in that, on account of the angularity of the connecting rod, the piston speed is greatest above mid stroke. This would, if the area was equal, call for a larger valve at the top than at the bottom. The area being less on top, however, than below, the same size valve may be used and the depth of port made less in the interest of clearance.

The high pressure valve is double admission and single exhaust. The low pressure steam valves are double admission and the exhaust valves single exhaust. The throttle valve is placed on the right of the low pressure cylinder, Fig. 2, and steam enters the jacket space through an opening between the upper and lower cylinders. This construction permits of the removal of the high pressure cylinders without disturbing the steam pipe connection.

The working parts are enclosed, with doors and side plates for inspection, adjustments or removal. The lubrication is automatic and copious,

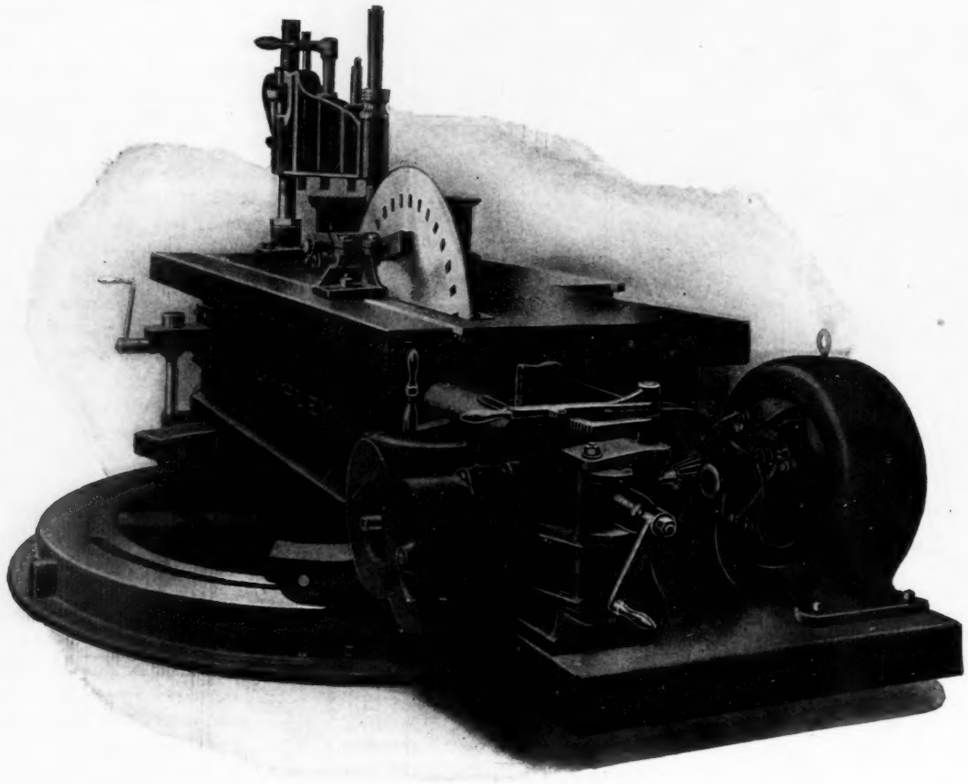
force feed being used throughout. The governor is of the single weight gravity balanced type controlling the high pressure valve placed across the tops of the high pressure cylinders. These being single-acting, one valve serves for both. In Fig. 2, the piston of No. 2 cylinder being located at the bottom of the stroke, the valve for that cylinder is shown to the left of its central position, the exhaust port being uncovered. This valve is just beginning to open the port to No. 1 cylinder to admit steam, the piston in that cylinder being at the top of the stroke. Edwin H. Ludeman & Co., 165 Broadway, New York, are the agents for this engine.

A NEW HIGLEY METAL SAW.

The Higley Machine Co., New York, has recently brought out a new feed mechanism for its table type saw, the general arrangement of which is shown on the accompanying illustration. The principle is the same as the friction feed used on the machines originally built for the Cambria Steel Co., and consists of two friction disks having ample bearing surfaces and which are held together by a powerful spring, the tension of which can be regulated to suit the rate of feed desired.

The action of this feed is entirely automatic and is controlled by the resistance of the cut, and when properly adjusted it will relieve itself, instead of being forced ahead at a speed injurious to the blade. In connection with these friction feed disks a set of slip gears are used by which the maximum feed can be set at ½-inch, 1 inch or 1½-inch per minute. The gear box is self-contained and the changes are made by the handle shown on top of the graduated scale.

This combination of the friction disks and change gears gives a range of automatic feeds from 0 to 1½ inch per minute. The illustration shows the table type saw when mounted on a turn table. The machine is revolved by hand and may be clamped in any position in an arc of 90 degrees.



HIGLEY METAL SAW.

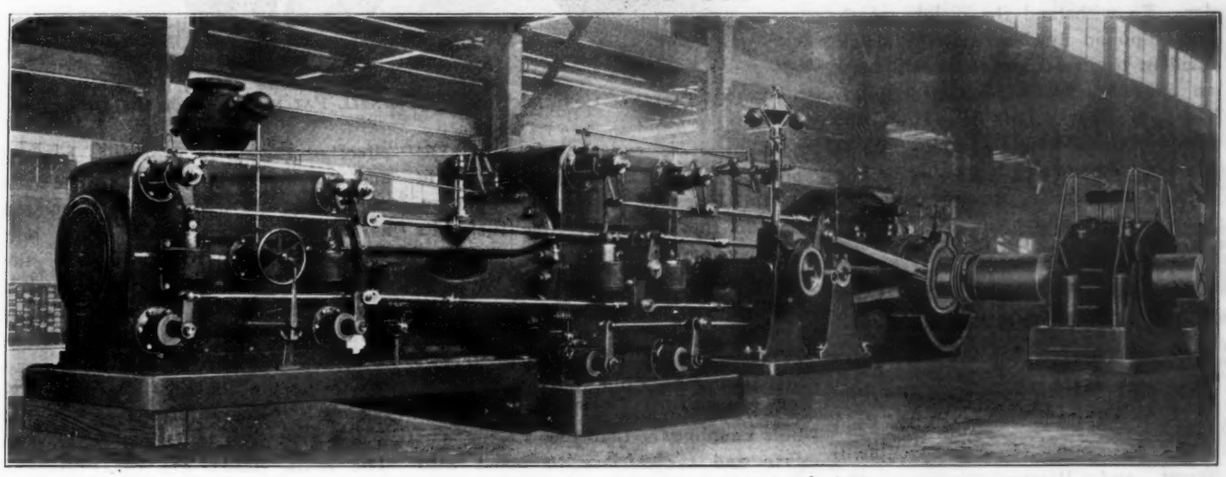
STEEL DERRICKS.

The Carnegie Steel Co. has recently built for the Oil Well Supply Co., of Pittsburg, according to plans of the latter company, some steel oil derricks, possessing a number of advantageous features. A great advantage of the steel derrick over wood is claimed to be the possibility of figuring the material in the steel derrick to conform to the requirements of drilling, erection and moving, and that sizes of members can be made to conform closely to the required strength. There is no waste in the field, such as is ordinarily found in the use of wood, which is bought in commercial sizes and framed and fitted with more or less waste in construction. In taking down and re-erecting the steel derrick there is no loss due to decayed or broken pieces. Another advantage claimed for the steel derrick is its lighter weight, saving expense both in transportation and erection. The derrick is also made with slightly longer panels than customary, enabling it to be erected more quickly than the wooden derrick, as it involves handling a fewer number of pieces. In erecting, the lower panels are bolted together in the field by ordinary machine bolts and the derrick erected panel by panel by the use of planks laid across the corners from the horizontal braces.

The steel derrick possesses a long life and can withstand rough service. It is made in two general types, known as the standard and California rigs, both of which use the same rig irons as are used with the wooden rigs. The derricks are built in two sizes, 72 feet and 80 feet high, weighing 17,000 and 24,000 pounds, respectively.

LARGE CORLISS ENGINE FOR INLAND STEEL CO.

Among the enlargement plans of the Inland Steel Co., Indiana Harbor, Ind., as described in THE IRON TRADE REVIEW of Aug. 27, 1908, is a 24-inch bar mill to be direct driven by a large tandem compound Corliss engine which is being built by the Mesta Machine Co., at its West Homestead Works. The accompanying illustration shows the engine in process of erection in the Mesta company's shops, and from it will be noted the massive construction and general arrangement. Air furnace iron is used exclusively for the frame, cylinders, sole plates, distance piece and fly wheel, while the crank disc, crosshead and intermediate support are acid open-hearth steel castings.



MESTA CORLISS ENGINE FOR 24-INCH BAR MILL OF THE INLAND STEEL CO.

The general dimensions of the engine are:

Length over all	57 feet
Width over main shaft	25 feet
Cylinders	38 and 72 x 60 inches
Normal speed	80 R. P. M.
Normal operating steam pressure	150 lbs. per sq. in.
Normal capacity	5,000 H. P.
Weight of frame	150,000 lbs.
Total weight of engine	715,000 lbs.

In the main frame and sole plate designs the depth of section offers exceptional strength and ample means for foundation security. By casting the main frame and bored guide in one piece, strength and rigidity, together with perfect alignment, were obtained. The valve is of the double-eccentric straight-line Corliss type without wrist plates, giving a cut-off variation from 0 to ¾ stroke. All valves are double ported, with the ports symmetrically arranged, so that the valve wears to its seat and remains steam tight. The eccentric and reach rods are forged solid with solid stub ends and are fitted with wedge-adjusted bronze boxes.

An ingenious device on the high presssure valve gear disconnects the eccentric drive, thus leaving all valves in a closed condition, and by the hand operation of a four-way steam valve, the engine may be quickly stopped or reversed. A compact valve bonnet with two bearings for the valve stem is comprised in this design, which calls for an inside steam arm secured to the valve stem by a feather key and taper fit. By means of a bushing carried through the steam lever and the outside bearing, this steam arm may be tightened by an outside nut while the engine is in operation. This double bearing assures the valve stem alignment and tends toward a quiet and easily operated valve gear.

The low pressure cast steel piston is of the umbrella type, with a cast steel follower and one sectional packing ring, and is carried on a 14-inch hollow forged rod. Into the rear end of this rod is screwed and locked the 8-inch high pressure rod. This screw adjustment offers the means of properly proportioning the clearance at both ends of the high pressure cylinder. At this junction of the rods is placed the cast steel intermediate support, which together with the main crosshead holds the low pressure piston floating free of the cylinder walls.

The high pressure piston is of cast iron with a sectional packing ring, cast iron follower and junk ring, and by a set screw adjustment for this junk ring, together with the adjustment of the crosshead and intermediate support, perfect alignment and the proper position of the piston rods are maintained.

The main shaft is a solid steel forging 30 inches diameter at the wheel fit and has main journal 26 x 44 inches and an outer bearing 26 x 46 inches. The crank pin is 16 x 14 inches and the wrist pin 14 x 14 inches. All wearing joints such as crank, crosshead pins, piston rods and main journals, are carefully ground and polished to secure from the beginning a thoroughly smooth working fit, and to eliminate the troublesome heating so often found on starting a new engine.

Insurance against the failure of the governor drive is obtained by the use of three 1¼-inch ropes in multiple, and for further safety, an idler pulley carried on these ropes is so arranged through lever connection, that should it fall through failure of the ropes, the inlet valves will be prevented from opening. From the illustration it will be seen that the dash pots are all carried on the cylinders, offering a compact arrangement with less weight in moving parts than in the usual design. The dashpots themselves are metallic packed, and are self adjusting for wear, thus securing an exceptionally tight fit and long life.

For the operation of this engine under widely varying loads a new quick closing throttle valve has been

designed. This valve is a balanced rotating disc with segmental openings, the maximum travel of which is obtained by 1¼ turns of the hand-operating wheel.

The general design of this engine has been worked out so as to overcome the usual objections to the tandem type of engine. Both cylinders are carried on sole plates with a tongue and groove and substantial gib attachment, thus permitting the end travel of the cylinders due to temperature changes, without danger of disalignment. Accessibility is afforded to the low pressure cylinder by the use of a manhole is the cylinder head, while should it be necessary to remove the rear head, the distance piece may be taken out without disturbing the position of either cylinder. To withstand the weight of the 170,000-pound flywheel and the shocks incident to direct connected mill work, an unusally heavy outboard pillow block is used. This is an air furnace iron casting, weighing 55,000 pounds, and is fitted with quarter boxes, all adjustable, to preserve the proper shaft alignment.

THE CALDWELL PATENT CONVEYOR COUPLING.

A new coupling for spiral or screw conveyors has been recently patented by F. C. Caldwell, of the H. W. Caldwell & Son Co., Seventeenth street and Western avenue, Chicago. The coupling that has been the standard for screw conveyors, is the well-known four-bolt coupling, which consists of a solid coupling shaft in which are drilled bolt holes, corresponding bolt holes being drilled in the conveyor pipe and machine bolts forming the connection between the coupling shaft and the hollow shaft of the conveyor pipe.

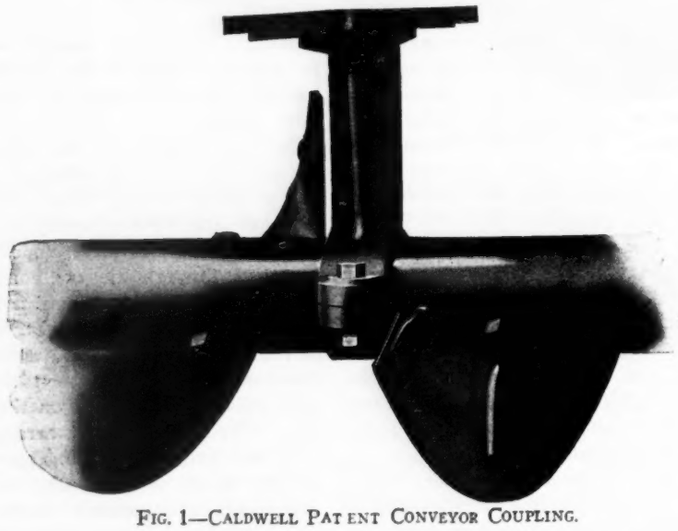


FIG. 1—CALDWELL PATENT CONVEYOR COUPLING.

In manufacturing the four bolt coupling it is endeavored, so far as possible, to make the bolts a tight fit in the holes to prevent lost motion, but, in the course of time the bolts will become loose and gradually shear off, or the bolt holes in the pipe will wear out. Where the service of the conveyor is severe this is apt to occasion more or less frequent repairs and loss of time due to shutting down. The mechanical criticism of the four bolt coupling is that the bearing surface and the surface to resist wear that is presented by the circumference of the machine bolt which presses against the wall of the pipe is comparatively small. The effectiveness of such a coupling might be compared with a set screw for fastening a pulley.

The new coupling is shown in Fig. 2. It will be seen that the conveyor pipe has an internal bushing and that, as a part of this bushing, is formed a feather key which projects into a keyseat cut in the coupling shaft. The

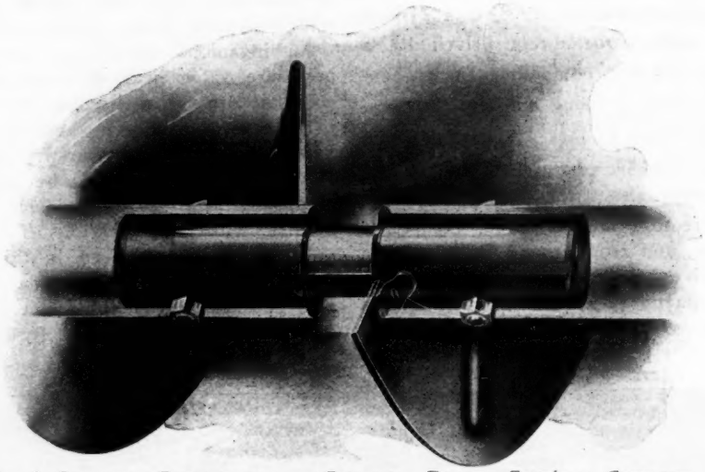


FIG. 2—INTERNAL CONSTRUCTION OF CALDWELL PATENT CONVEYOR COUPLING.

effect of this is to provide a bearing and wearing surface equal to the face of the key and when this is calculated as compared with the coupling bolt surface, the increased surface of the key is so great that its strength as a power transmitting appliance and its durability is much greater. The internal bushing is prevented from turning inside the conveyor shaft by having on its outer surface a groove into which the pipe is forced while hot. The bolts shown are only intended for the purpose of preventing the coupling shaft from moving endwise and these bolts are not intended for transmitting power.

The coupling shown with the keyseat running the full length of the shaft is designed especially to be used where a chilled cast iron bushing is used as a sleeve on the coupling shaft, this sleeve running in the hanger bearing proper. For ordinary purposes the shaft would be left round at the hanger space and run in a babbitted bearing, and in such case it would be practical to entirely discard the bolts shown, thus furnishing a coupling without any coupling bolts whatever.

E. G. Ladd, for 15 years connected with the Chicago Bridge & Iron Works' contracting department, selling water towers and tanks, recently formed a connection with the Morava Construction Co., 1245 Marquette building, Chicago. As heretofore, Mr. Ladd will follow the water works business and also look after the railroad business of the company.

Strong Close After Mid-week Sag.

The stock market made a strong close for the week Friday, after a recovery from the mid-week depression caused partly by realizing sales induced by foreign news over the Moroccan situation, and partly by the over-bought condition resulting from the fortnight's previous manipulation. Monday the opening of the market showed that industrial stocks, including coppers, had the greatest strength, Steel preferred being sold at 112½. Railroads were inclined to lag. Tuesday, although heavy net decreases were shown in earnings for the Pennsylvania lines, yet railroad stocks were perceptibly improved. Signs of a halt in the upward movement appeared Wednesday, and reports of various industrial companies tended further to depress the market. Declines along practically all lines were noted throughout industrials as well as railroad lists, but on Friday quick recovery was noted, practically all active stocks closing with their gains of Thursday again in evidence. Stock exchanges were closed Saturday on vote not to open again until Tuesday following Labor day.

August failures showed the smallest monthly total of suspensions since October, 1907; an aggregate of 1,003 failures, which is a decrease of 12 per cent from July, but an increase of 49 per cent over August, 1907. August sales of bonds in New York aggregated $82,647,300, the highest record for that month in the history of the exchange, with the exception of August, 1905. Share sales in August amounted to 18,845,996, a gain of 37 per cent over July last, and of 29 per cent over August, 1907. Business failures for the week ending Sept. 3 were 210, against 236 the preceding week and 130 the corresponding week of 1907. Bank clearings for the week ending Sept. 3 aggregated 18 per cent over the preceding week, 18.7 per cent above the corresponding week last year.

No new features were apparent in the New York loan market during the week, the market continuing dull with easy rates for this time of the year. The statement of the clearing house banks shows that they hold $59,644,950 more than reserve requirements, a decrease of $5,714,025 as compared with the preceding week. Loans increased $10,935,800; deposits increased $8,024,100, and the percentage of actual reserve was 29.21. The statement of non-member banks and trust companies shows aggregate deposits of $1,046,932,600; total cash on hand $102,441,600, and loans amounting to $940,417,000. Shares to the number of 3,040,450 were dealt in during the week, compared with 3,537,964 the preceding week and 2,474,250 the corresponding week last year. Bonds, exclusive of government bonds, were sold to the amount of $25,505,000, compared with $28,357,000 the preceding week, and $4,165,000 the corresponding week last year.

Financial Notes.

American Car & Foundry Co. declared the regular quarterly dividend of one-half of 1 per cent on the common, and 1¾ per cent on preferred stock, payable Oct. 1; the American Can Co., the regular quarterly dividend of 1¼ per cent on preferred, payable Oct. 1; Calumet & Hecla Co., the quarterly dividend of $5 per share, payable Sept. 29; American Smelting & Refining Co., the regular quarterly dividend of 1¾ per cent on preferred, payable Oct. 1, and 1 per cent on common, payable Oct. 15; Cambria Iron Co., the regular quarterly dividend of 2 per cent, payable Sept. 15; the Canadian General Electric Co., Ltd., the regular quarterly dividend of 1¾ per cent on common and the regular semi-annual dividend of 3½ per cent on preferred, payable Oct. 1.

THE LEADING INDUSTRIAL SECURITIES.

	Closing Quo. Sept. 4	Changes in Week	Date 1908 Ann. M't'g	Stock Outstanding	Dividend Basis	Dividend Last Declared	Dividend Date Last Div. Pay.
Allis-Chalmers	11⅛	− ⅜	Sept. 3	19,820,000			
Allis-Chalmers pr	35	− ¾		16,150,000	7 cum	1¾ Q.	Feb., 1904
American Can	6	.....	Feb. 3	41,233,300			
Am. Can pr	62	+ ⅜		41,233,300	7 cum	1¼ Q.	July, 1908
Am. Car & Foundry	40⅞	− ⅜	June 25	30,000,000		½ Q.	July, 1908
Am. Car & Fdy. pr	104	+ ⅛		30,000,000	7 n. c.	1¾ Q.	July, 1908
American Loc	54	−3¾	Oct. 20	25,000,000	5	1¼ Q.	Aug., 1908
American Loc. pr	105½	− ½		25,000,000	7 cum	1¾ Q.	July, 1908
American Ship	48¾	.....	Oct. 14	7,600,000	4	1 Q.	June, 1908
American Ship pr	100½	.....		7,900,000	7 n. c.	1¾ Q.	July, 1908
Am. Steel Foundries.ctfs	9	+1	Oct. 6	15,810,000			
Am. Steel Foundries(new	31	−2		17,240,000	6 cum	2½	Aug., 1904
Barney & Smith	45	.....	June 2	2,000,000	4	1 Q.	Sept., 1907
Barney & Smith pr	110	+8		2,500,000	8 cum	2 Q.	June, 1908
Bethlehem Steel	23	.....	April 7	14,862,000			
Bethlehem Steel pr	50	+1		14,968,000	7 n. c.	¾ Q.	Feb., 1907
Cambria Steel	38¾	+1½	March 17	45,000,000*	6	1½ S. A.	Aug., 1908
Cambria Iron	46	.....		8,468,000*	4	2 S. A.	April, 1908
Chicago Pneumatic Tool	25	− ½	Feb. 17	6,145,800	4	1 Q.	Oct., 1907
Colorado Fuel	36	− ½	Oct. 19	34,235,500		3½	April, 1902
Crucible Steel	7	− ⅛	Oct. 21	24,578,400			
Crucible Steel pr	49⅝	− ¾		24,436,500	7 cum	1 Q.	Dec., 1907
Empire Steel	7	.....	Feb. 26	1,254,770			
Empire Steel pr	48	.....		2,500,000	6 cum	3 S. A.	July, 1908
Fay & Egan	100	.....	Feb. 18	1,000,000	6	1½ Q.	Aug., 1908
Fay & Egan pr	110	.....		1,000,000	7 cum	1¾ Q.	Aug., 1908
General Electric	146¾	+ ¾	May 12	65,167,400	8	2 Q.	July, 1908
Harbison-Walker	12	.....	Jan. 20	18,000,000		½	Oct., 1907
Harbison-Walker pr	75	.....		9,600,000	6 cum	1½ Q.	July, 1908
International Pump	24⅞	− ¾	June 2	17,787,300		1	April, 1908
International Pump pr	80¾	+1		13,835,000	6 cum	1½ Q.	Aug., 1908
Lackawanna Steel	35	+1	March 11	34,971,400		.....	.....
Lake Sup. Corp	6¼	+ ⅜	Oct. 7	40,000,000		.....	.....
New York Air Brake	79	−2	June 18	8,012,500	8	2 Q.	Oct., 1907
Niles-Bement-Pond	130	.....	Feb. 5	8,500,000	6	1½ Q.	Sept., 1908
Niles-Bement-Pond pr	100	.....		2,000,000	6 cum	1½ Q.	Aug., 1908
Otis Elevator Co.	38	.....	March 16	6,156,600		1½ S. A.	April, 1908
Otis Elevator Co. pr	90	.....		5,449,500	6 n. c.	1½ Q.	July, 1908
Penn. Steel	60	.....	May 11	10,710,000		.....	.....
Penn. Steel pr	103	+5		16,500,400	7 n. c.	3½ S. A.	May, 1908
Pittsburg Coal Co.	10¾	− ⅛	Feb. 10	28,853,400		.....	Nov., 1906
Pittsburg Coal Co. pr	43¾	+ ¼		27,030,800	7 c.	1¾	April, 1905
Pressed Steel Car	34¾	− ¾	Feb. 19	12,500,000		3	Aug., 1904
Pressed Steel Car pr	96	.....		12,500,000	7 n. c.	1¾ Q.	Aug., 1908
Pullman	165	.....	Nov. 11	100,000,000	8	2 Q.	Aug., 1908
Railway Stl. Spring	42½	−2½	March 5	13,500,000	4	2 S. A.	April, 1908
Railway Stl Spring pr	100⅛	+ ⅛		13,500,000	7 cum	1¾ Q.	Sept., 1908
Rep. Iron & Steel	23¾	−1¼	Oct. 21	27,191,000		.....	.....
Rep. Iron & Steel pr	80½	+ ½		20,416,900	7 cum	1¾ Q.	April, 1908
Sloss-Sheffield	63½	− ¾	March 11	10,000,000	5	1 Q.	Sept., 1908
Sloss-Sheffield pr	103	+ ⅜		6,700,000	7 n. c.	1¾ Q.	July, 1908
U. S. Pipe & Fdy.	25¾	−1	June 24	12,500,000	4	1 Q.	Dec., 1907
U. S. Pipe & Fdy pr	71	−2½		12,500,000	7 n. c.	1¾ Q.	Sept., 1908
U. S. Steel	46⅞	− ⅜	April 20	508,302,500	2 n. c.	½ Q.	Sept., 1908
U. S. Steel pr	111¾	− ⅜		360,281,100	7 cum	1¾ Q.	Aug., 1908
U. S. Steel 5'	101½	+ ⅛		463,798,000	5	5 A.	.....
Va. Iron, Coal &Coke	60	−1	Nov. 17	9,073,680			
Westinghouse Elec	75½	+ ½	June 24	28,933,200	10	2½ Q.	Oct., 1907
Westinghouse Air Brake	106¾	−2¾	Oct. 6	11,000,000*		2½ Q.	July, 1908

Par value of shares, $100, except those starred (*), $50

NEWS FROM MANY INDUSTRIES

New Buyers.—

The Kewanee Zinc Co., Kewanee, Ill., capitalized at $30,000, has been incorporated to conduct a mining business. The incorporators are F. Gunther, A. J. Mather and C. E. McCullough.

The Burchard Bros. Co., Oxford, N. Y., has been incorporated by Frederick H. Burchard, F. Leonard Burchard, Norwich, N. Y., and Albert S. Burchard, Oxford, N. Y., to manufacture hardware, with $25,000 capital stock.

The Wilna Machine Works, Carthage, N. Y., has been chartered to manufacture machinery, build engines, etc., with $15,000 capital stock. Those interested include Stephen H. Gallagher, Fred C. Gontermout and Herbert K. Greene, of Carthage.

Articles of incorporation have been filed by the Sparta Mfg. Co., South Bend, Ind., which was organized to manufacture water stills, gas heaters and vending machines, by D. D. Bates, V. G. Jones and G. A. Elliott. The capital stock is $10,000.

The Standard Force Feed Lubricator Co., Rochester, N. Y., has been incorporated with $20,000 to manufacture lubricators, machinery, etc. Those interested are John Sherry, John F. Dake and Thomas F. Andrews, Rochester.

The Indiana Air Pump Co. has been chartered at Indianapolis to manufacture pumps for lifting water and oil. The company is capitalized at $10,000, and will establish a plant immediately. Those interested are: O. M. Pruitt, O. E. Harris and R. A. Smith.

The Huron Products Co., Philadelphia, has been granted a charter to mine and sell ore in Adams, York and Cumberland counties, Pa., with $5,000 capital stock. The incorporators are L. P. Stradley, Thomas J. Donaghy, and B. J. O'Connell, all of Philadelphia.

The Selah Mfg. Co., Camden, N. J., to deal in ores, minerals and metals and manufacture all materials, has been chartered by the following, all of Camden: Howard A. Selah, James McLinden and John H. Switzer, 232 Market streeet. The company is capitalized at $105,000.

Application has been made for a charter for the Lehigh Stoker Co., Allentown, Pa., to manufacture stokers and other steam making appliaces. Those interested in the organization are John S. Fulton, Warren A. Wilbur, J. W. Fuller Sr., J. W. Fuller Jr., Robert E. Wilbur, Leonard Peckitt and C. H. Zehnder, all well known in eastern Pennsylvania iron and steel circles.

The Standard Machine Co., Canton, Mo., has filed articles of incorporation, with $10,000 capital stock through T. C. Yeager, H. H. Zenge, William J. Zenge and others.

M. J. Gartland, J. C. Haswell and J. H. Schaumleffel have organized the Atlas Foundry Co. at Marion, Ind., and have been elected directors of the new company for the first year. The capital stock has been placed at $16,000. The product will be gray iron castings.

A charter has been granted to the Karl Kiefer Machine Co., Cincinnati, capitalized at $500,000. The incorporators are: Abram Rheinstrom, Karl Kiefer, H. A. Rheinstrom, A. Julius Frieberg and Samuel Fecheimer.

William W. McWade, Frederick W. Packard and A. W. Aiken are the incorporators of the Vulcan Mfg. Co., 1216 First National Bank building, Chicago. The company is capitalized at $30,000, and will manufacture metals.

The Traka Metal Co., metals, has been incorporated with $25,000 capital stock. The officers are: President, Israel Goodman, Boston; treasurer, Solomon Weinstein, No. 25 Auburn street; and clerk, Charles Heller, Somerville, Mass.

Curtin-Herbert-Anthony Co., Gloversville, N. Y., foundry and machine shop, has been incorporated with $100,000 capital stock by Frank Curtin, James Curtin, Mador D. Herbert and Hiram J. Anthony, Gloversville, N. Y.

The National Appliance Co., 70 La Salle street, Chicago, has been incorporated to manufacture railway specialties, with an authorized capital of $5,000. The incorporators are Clinton C. Murphy, Belden D. Jones and E. C. Frank Meier.

New Construction.—

The Lawrence Stove Co., Buffalo, N. Y., is repairing and rebuilding a three-story brick building at a cost of $5,000.

Eugene Bunn & Son, of Oconto Falls, Wis., have purchased land at Forest, Wis., on which they plan to erect a machine shop.

A smelting plant which is being established in Chicago by the Great Northern Smelting & Refining Co., will include a one-story building 130 x 400 feet, a one-story foundry 60 x 160 feet, a one-story smelter 50 x 400 feet, and a refining plant 40 x 360 feet. All the buildings will be of reinforced concrete. The plant will be established at the northwest corner of Lowe avenue and Forty-first street.

Glenn Hill & Co., Hastings, Mich., have opened a machine shop especially for repair work along steam and gas engine lines.

Alfred A. Sustins has begun the erection of a stone and brick structure adjoining his present machine shop at Stevens Point, Wis., into which he will later remove.

The Jansen Steel & Iron Co., Columbia, Pa., is letting contracts for enlarging its plant. Steel shears to cut 6-inch billets and plates have been contracted for.

The Farquhar Furnace Co., Wilmington, O., is perfecting plans for the construction of a factory building 100 x 200 feet to take the place of the present plant construction.

The Watkins Machine & Foundry Co., Hattiesburg, Miss., is building an addition 100 x 200 feet, in order to care for large car repairing contracted for by the Northeastern railroad.

The contract has been let and work begun on the annex to the Smith & Watson Iron Works, Portland, Ore., the contract calling for completion Dec. 1. The building will be three stories, brick, 100 x 200 feet.

Ehlers & Lindley have let contracts for the erection of a fabricating plant, including machine shop, warehouse, etc., at Los Angeles, Cal. The plant will especially fabricate bars and rods for reinforced concrete work.

The Seymour Mfg. Co., Seymour, Ind., is building a brick addition to its main factory building, in which sheet iron construction will be carried on. Forges are being installed, as well as shaping and shearing machinery.

The West Allis Malleable Iron & Chain Belt Co., West Allis, Wis., is excavating for an addition to the plant 40 x 100 feet, two stories, to be used as a storehouse. The offices of the company will also be in the new building.

John W. Hayes, of Superior, Wis., is organizing a company to engage in the manufacture of malleable iron castings at Vesper, Wis., but more especially in the manufacture of a clevis invented by himself. The building which will be erected will have ground dimensions of 60 x 100 feet.

The new buildings which the Buckeye Steel Castings Co., Columbus, O.,

has been constructing, are nearing completion. Part of the new gas producer plant has been installed and the company is now operating one cupola. The new machine shop and other buildings will be practically completed this year.

The Phillips Sheet & Tin Plate Co., Clarksburg, W. Va., has awarded the contract for 2,000,000 brick to be used in the construction of an addition to its plant. It is figured that when the addition is completed, 400 more men will be employed.

The Santa Fe railroad is establishing at Newton, Kans., in connection with its present plant, shops for making guard rails, frogs and switch points. The building will be 40 x 72 feet. Plans have been approved and the machinery ordered.

The Austin Iron Mining Co., 507 Harrison building, Philadelphia, is having plans drawn for installing a power plant at Brooke, Va., to operate its iron pyrites mines. The plant will include a 70-horsepower steam engine, 100-horsepower boiler and air compressor, hoisting engine, etc.

The concrete foundations for the foundry buildings of the Pacific Malleable Castings Co., Riverside, Cal., have been completed, occupying a space of 160 x 200 feet. General Manager William F. Kerr is receiving figures on material for the remainder of the plant construction.

General Industrial.—The Chicago Combination Cupola & Machine Co. has increased its capital stock from $5,000 to $500,000.

The H. W. Graber Machinery Co., Dallas, Tex., has amended its charter increasing its capital stock from $10,000 to $45,000.

The Ajax Valve Co., New Jersey corporation, has been granted an Illinois charter, to deal in machinery. The capital stock is $250,000. Offices will be located at 67 Wells street, Chicago.

The Titusville Iron Co., Titusville, Pa., advises that the statement that has been running through the daily press to the effect that it is contemplating enlarging its boiler shop, machine shops and foundry is not true.

Fred C. McLaughlin has been appointed receiver in bankruptcy for the American Machinery Co., 651 West Forty-third street, New York City, with a bond of $15,000. The assets are estimated at $25,000, including the material, machinery and accounts.

Shipments for export by the Toledo Machine & Tool Co., Toledo, O., have been keeping the plant running almost fullhanded since last November. The company has just shipped a number of punch presses to Berlin, Germany, and a like shipment is almost ready to be sent to Italy. The company's estimates to equip a drop forge plant in Vienna, Austria, have been accepted, and several other contracts in other parts of the globe are being figured on.

The board of regents of the University of Washington has appointed a committee to confer with the United Metal Trades Association, Seattle, Wash., with respect to establishing a fully equipped foundry plant at the university.

The Union Hydraulic Pipe & Boiler Works, Juneau, Alaska, has received orders for the manufacture of ore cars, skips and other heavy machinery to be used in Alaskan mines. The trial order which was recently completed, has been found satisfactory compared with a similar product secured in the United States.

The American Steel Wheel Co., Alexandria, Ind., which was incorporated early in June for $250,000, and which purchased the plant of the Keefer-Heart Iron & Steel Co., is making the improvements to the plant noted in the issue of Aug. 27. The American Steel Wheel Co. manufactures pressed steel vehicle wheels.

The Lackawanna Steel Co., through its local representatives, aided by the business men's organization of West Seneca, N. Y., has made a strong argument before the West Seneca assessors against the proposed additional assessment of $1,500,000 on its property. While decision has been reserved, it is understood that the additional assessment will not be enforced.

The Oakley Steel Foundry Co., newly organized, has purchased the Worcester Steel Foundry, in Millbury, Mass. The company is capitalized for $125,000, under Massachusetts laws. The officers are: Fred W. Moore, president; William E. Oakley, vice president; Henry T. Maxwell, secretary and treasurer.

The Indiana Rolling Mill Co., New Castle, Ind., advises that the loss sustained by a fire on Aug. 19 has been satisfactorily adjusted, and that at the present time the company is rebuilding, repairing and reseting machinery. The plant began partial operation last week, and is expected to be in full operation and in a position to take care of all trade offered within a week.

The Western Sheet & Structural Iron Works Co., with a capital stock of $150,000 has been organized at Salt Lake City, and articles of incorporation are being prepared. A site for the proposed plant has been purchased in the southwestern part of Salt Lake City. Among those interested in the proposed company are Charles H. Henderson, president of the Salt Lake Construction Co.; Frank Simmons, G. S. Barr, formerly connected with the Keystone Bridge Co., and Frank A. Fafek. It is proposed that the plant will supply structural material to builders in Salt Lake City and its vicinity. It is announced that construction will begin within a month.

The Chalybeate Spring Iron Co., with a capital stock of $25,000, is developing a deposit of brown iron ore, running 56 per cent iron, in the southern part of Meriwether county, Georgia. Active operation of the mine began a short time ago, the daily output being 200 tons. The officers of the company are: President, Ray Morris; vice president and general manager, J. L. Marring; secretary and treasurer, W. H. Fealey. The offices of the company have been established at Middlesboro, Ky.

The Cayuna Iron Co., whose incorporation with a capital stock of $100,000 was recently noted, has organized with these officers and directors: President, H. S. Raymer; secretary and general manager, E. D. Hickey; treasurer, R. Lord; Park W. Tourtellot, R. A. Moses, W. E. Dean Jr., and George H. Boyson. The company, which has established at Cedar Rapids, Ia., and Aitken, Minn., owns 4,000 acres of iron ore land along the Cayuna iron range in Aitken and Crow Wing counties, Minn. The company has been formed for the purpose of prospecting and developing properties.

The International Oil Engine Co., Danielson, Conn., is at work on a large order for the United States government, for its new marine type of engine just perfected, on same general lines as its auto engine. The new engine is a two-cylinder, 50-horsepower and burning kerosene.

The Worcester Railway Supply Co., Worcester, Mass., a corporation organized by Albert C. Marble, Wallace H. Gilbert and Joseph M. Smith, all of Worcester, will manufacture a patented automatic car fender, which practical tests and considerable use proves to be a successful device. Mr. Smith is the inventor.

At a meeting of the new directors of the Western Iron Works, Ltd., Winnipeg, Can., engineer and iron founder, David Trainer, formerly of the Carnegie Steel Co. and the Canadian Copper Co., was elected manager to take the place of H. R. Eade, who has been chosen secretary-treasurer.

The company's progressive policy has been instituted by the new management together with the board, and new capital is being interested in the company. The directors and officers of the company are: President, C. A. Baskerville; vice president, C. P. Banning; second vice president, A. R. D. Patterson; C. M. Simpson, J. L. Doupe, Alexander Simmers, W. A. McLeod, W. H. Corbett are directors. The company manufactures ornamental and structural iron and structural steel, as well as doing a good business in the line of general castings.

General Manager Jones, of the Dominion Steel Co., at Sydney, N. S., announces that if the figures do not show that the August output breaks the record of the company, yet it will be very close to the previous high water mark. He is also quoted as saying that bookings for July were 50 per cent greater than the output, and that shipments in August were the heaviest in the history of the Dominion Steel Co.

The molders' strike at the plant of the J. I. Case Threshing Machine Co., Racine, Wis., which has been on for the past three years, has at last been settled. Practically the full force of union molders has returned to work. The scale of wages remains the same as preceding the strike and the settlement is said to be a decided victory for the company.

Ground has been broken for the factory building to be occupied in Milwaukee by the Wambolt-Brunsweiler Co. of Appleton, Wis., which is about to move its plant to Milwaukee. The building, which is frame, on a concrete foundation, two stories, 120 x 120 feet, is to be completed for occupancy Oct. 1.

Schmidt Bros. & Hill have begun work on the construction of the new shops at Superior, Wis., for the Wisconsin Central railroad. The shops include a machine shop, repair shop, cinder pit, turn table, store house and round house, the aggregate cost being estimated at $100,000. The passenger station and freight house will be completed the latter part of the month.

The Utah Mining Machinery & Supply Co., Salt Lake City, advises that it is erecting a warehouse of structural steel and reinforced concrete, 42 x 100 feet for a machine shop and sheet metal works; basement, 10 feet, first story, 12 feet, and second story, 10 feet high. The American Bridge Co. is erecting the structural steel and the company itself is doing the reenforced concrete work. The building will be equipped with an air compressor and a full line of machine shop tools, traveling crane, and power and sheet metal working devices. The company is the manufacturer of the Callow screening machine, and the Callow settling tank, for use in ore concentrating mills. The company is now running two large shops, and proposes to combine manufacture under one roof.

The new foundry and machine shops being established by McClave & Bossart at Paxton, Ill., are being put into shape for occupancy soon. They will occupy a brick building at West Pells street and Railroad avenue, which will be extended to the alley at the rear, making the length of the building 120 feet. The firm will engage in making iron, brass and aluminum castings and in the repair of engines, machinery, automobiles, etc.

The stockholders of the New Process Steel Co., Marshall, Mich., have called a meeting to be held the second week in September for the purpose of considering a proposition to increase the capital stock in order to provide for adding a new department to the plant. The company, which has been operating for two years, manufactures castings, more especially for automobiles by means of a secret process. Steadily increasing volume of business has forced the company to enlarge its plant and add several new furnaces.

The Burke Machinery Co., Cleveland, advises that the Commercial Dairy Machinery Co., recently incorporated by Cleveland capitalists, has taken over the manufacture of the Pasteurizing apparatus heretofore constructed by the Burke company. The new company will require little new machinery as it is fairly well supplied, but it expects to increase its output materially as in addition to the pasteurizer it will market other devices suitable for the dairy trade, particularly a bottle sterilizer.

The Burden Iron Co., Troy, N. Y., put into operation the first of the month a plan whereby employes may earn a bonus in addition to their salary by exercising care. The company announced the details of the plan at a mass meeting of the men some days ago. It is provided that a sum of money shall be divided among those employes who have the least amount of waste to their iron. The money will be divided the last day of this year, and also the day of the shutdown next June. The first prize offered is $100, second, $60; third, $15; and fourth, $5.

The San Jose Foundry, San Jose, Cal., structural steel and machinery, advises that the principal loss from the fire of July 29 was sustained by patterns and building, being about $2,000, and fully covered by insurance. The building is being repaired along former lines.

Stockholders of the Quincy Engine Works, Quincy, Ill., have tentatively indorsed the acceptance of a proposition by which the International Engineering Co., of Scranton, Pa., will take over the company and holdings of the present stockholders, assume the indebtedness of the original company and make improvements and enlargements of the plant on a bond issue. The estimated cost of the additions contemplated will be $60,000.

The M. Garland Machine Co., Bay City, Mich., has been steadily in receipt of orders to such volume that it has placed its plant on six days a week running time. The company is now filling two orders for saw mill equipment, one from the Hansen interests at Grayling, Mich., and the other for W. D. Young & Co., at Bay City.

Fires:—

The foundry of E. D. Jones & Sons Co., Pittsfield, Mass., was damaged to the amount of $2,500, Sept. 2.

The foundry and machine shop of the Georgia Iron Works, Augusta, Ga., was burned Aug. 29, the loss being $30,000.

The saw mill of the Lake Superior Corporation, at Sault Ste. Marie, burned Aug. 27, the loss being about $40,000, covered by insurance.

The plant of the Cambridge Architectural Iron Co., Cambridge, Mass., sustained damage to the amount of about $81,000, Aug. 31, by a fire originating from an explosion of naptha.

The foundry and machine shop of the Warsaw-Wilkinson Co., Warsaw, N. Y., was badly damaged Aug. 29. The loss is estimated at about $8,000, the greater part on patterns. It is coverd by insurance.

The Deseronto Iron Works, Deseronto, Ont., were struck by lightning Sept. 1, and set on fire, resulting in their serious damage. The works had been closed down for five months but were being refitted with a view to early resumption of work.

Trade Notes:—

Vivan Bond & Co., New York City., tin plate, pig tin, ferro-alloys and ores, have opened an office in the Frick building annex, Pittsburg, under the management of Andrew C. Daft.

The Cleveland Crane & Car Co., Wickliffe, O., has opened an office at 1203 Marquette building, Chicago, in charge of W. A. Rider, who will look after the interests of the company generally in that territory.

A new office has been opened in the Gumbel building, Kansas City, Mo., by the Crocker-Wheeler Co., Ampere, N. J., for the sale of Crocker-Wheeler motors, dynamos, transformers, switchboards, etc., the office to be in charge of A. W. Paine, who will give his personal attention to business in Kansas City and its vicinity.